MEDICAL REPOSITORY,

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OBSERVATIONS *on the* COUNTRY *and* DISEASES *near* ROANOKE RIVER, *in the State of North-Carolina: Communicated to the Editors by Dr.* JOSEPH PITT.

1. THE two rivers called Dan and Staunton, whose sources are in the western mountains, form, after their junction, the river Marattock, or Roanoke, which runs a south and southeasterly course, till it disembogues itself into Albemarle sound. The lands on this river are divided into first and second low grounds, and are very fertile. The foundation of the whole tract of country on and near Roanoke is clay. The soil lying on this clay is of different depths, as it has had the advantage, more or less, of being overflowed by the freshets. The soil in the first low grounds is perhaps from two to three and four feet deep; that of the second low grounds is not more than one, two, and three feet; and the soil of the high lands, or of the lands adjoining the low grounds, is very thin, perhaps not more than six, eight, or twelve inches, before the clay appears. The low grounds are intersected with ponds and marshes, which are covered with water more or less, except in dry seasons, when they become entirely dry. The high lands are intersected with swamps and pocosons, and are so extremely flat and level, that the water, after great rains, stands a considerable time on the surface of the earth. The low grounds are generally overflowed several times in the course of the year, and there is no period of time at which they are more liable to be overflowed than another. The farmer often experiences great loss from the freshets drowning his stock in the winter season; in the spring he often is obliged to plant his crop two or three times before he can make it stand; and after all his toil and labour, it is sometimes destroyed by the summer and fall inundations.

2. The country I am speaking of lies about 36 degrees north latitude. The seasons are extremely variable, particularly

the winter and spring. Very little snow falls in this country, but frequent cold and disagreeable storms of rain occur in the winter and spring months; and often sharp, cold, north winds are suddenly succeeded by warm, relaxing, south winds; and thus, alternately and suddenly, piercing cold, and enervating warmth diversify the winter and spring seasons.

3. The summer season is generally excessively hot. The country is entirely flat and level from the sea to the western hills, a distance not less than eighty or an hundred miles. We are situated at about an equal distance from the sea and from the mountains; so that we cannot have the advantage of sea breezes, nor of the cool air of the mountains. The country is covered with woods, interspersed with plantations; and in riding from one settlement to another, through the woods, in narrow roads, a person can scarcely get a breath of cool air. As the autumnal months approach, the heat gradually abates, but cool nights succeeding warm days render the season very unhealthy.

4. The diseases peculiar to the winter and spring seasons are pneumonia, catarrh, and angina. These disorders prevail more generally, I believe, in this country than in any other part of the United States. The principal cause of them, no doubt, is the sudden changes of the weather; not by obstructing perspiration, as is commonly thought, but by the violent effects of stimulating powers, suddenly applied to accumulated excitability. Heat succeeding cold, or cold succeeding heat in a violent and sudden manner, is every way adequate to produce the inflammatory complaints above mentioned.

5. In the cure of the above disorders, it is necessary to distinguish very accurately the diathesis that prevails in the system. By neglecting this distinction much harm is often done. Bleeding is the first remedy prescribed by some physicians in the above complaints, and generally employed by the people, to the great injury of many. When sthenic diathesis predominates, and the local inflammation is considerable, bleeding is a principal remedy, and must be repeated according to the fulness and hardness of the pulse. Cooling purges, antiphlogistic febrifuges, and pectorals are necessary. Flannel wrung out of warm water, and applied to the breast as a fomentation, and steam of warm water, inhaled into the lungs, are useful; and about the second stage of the complaint, when the inflammatory symptoms have in some measure abated, blisters may be applied to the part affected, with great advantage; but when asthenic diathesis prevails, the local pain is commonly spasmodic.

Bleeding is then improper, and, if practised, will soon induce a degree of debility incompatible with life. In this state of the system, a blister applied immediately is the principal remedy; a gentle purge, alkaline febrifuges, antispasmodic pectorals, tonics and opium, the steam of warm vinegar and water inhaled into the lungs, and flannel wrung out of the same, and applied to the part affected, are the remedies which generally prove successful.

6. Remitting and intermitting bilious fever is epidemical every year, in the summer and autumnal seasons. This fever generally begins in the month of July, and does not disappear till November, and sometimes continues longer. Some years the intermitting grade of this fever prevails more than the remitting, and some other years the remitting grade is more prevalent than the intermitting. The causes of this fever are a warm and moist atmosphere, and septic exhalations from the ponds and marshes; and as the poisonous effluvia are more or less concentrated, in consequence of the wet or dry seasons, the one or the other grade of this fever is most prevalent; hence a confirmation of the doctrine of Professor Mitchill, of New-York, that on clayey bottoms, and in all countries where argillaceous earth forms the basis of the soil, intermitting and remitting fevers generally prevail.

7. In the cure of remitting and intermitting bilious fever, bleeding is seldom necessary to be employed in the treatment of the natives of this country. But people from the northern parts of the United States, and foreigners, who are strong and full of blood, require bleeding in the first stage of this fever. Emetics, purges of jalap and calomel, alkaline febrifuges, Peruvian bark, opium, and epispastics, properly managed, seldom fail to remove the complaint in a very short time.

8. Typhus and dysentery are sometimes epidemical in this country; but not every year, like the disorders above mentioned. These disorders are observed to be most prevalent in dry seasons. The spring of 1799 was dry,—typhus was epidemical; and there was a remarkable drought in the summer of 1806,—typhus and dysentery were epidemical; and, in many other years, from accidental and local causes, these complaints have prevailed; but I believe never have become epidemical, except in very dry seasons. This circumstance induces me to believe, that the same septic exhalations from the ponds and marshes, being more concentrated and rendered more virulent from the excessive heat, are the principal cause of typhus and dysentery.

9. The cure of typhus, as it is a fever of extreme debility, requires all the aid that can possibly be obtained, from durable and diffusible stimuli. In the first stage, purges, and sometimes gentle emetics, are proper; volatile alkaline febrifuges, tonics, pure wines, pure spirits, musk, opium, epispastics, and a rich nourishing diet, are means which have proved most successful. In the cure of dysentery, purges of calomel and castor oil are necessary. Alkaline febrifuges, opium, glysters of mutton soup, flannel wrung out of warm water and applied to the abdomen, epispastics applied to the abdomen, diet consisting chiefly of soups, and, in the latter stages of the complaint, tonics, are the remedies which, from experience, have been found to be most useful.

10. Malacia, or dirt-eating, as it is called, and febricula, known among the people by the name of inward fever, are endemic in this country. Dirt-eating prevails mostly among the poor white people and negroes, and originates, in my opinion, from a deficiency of nourishment. It might be asked, if want of nourishment is the cause of dirt-eating, why do not the poor of the northern states eat dirt? A scantiness of nourishment in a northern climate does not produce the same debilitating effect on the constitution that it does in a warm, moist, relaxing atmosphere. The system requires three times the quantity of stimulus to sustain vigour or health in this country, that it does in a northern country. No person who is unacquainted with the extreme poverty of the lowest class of people, who live in this country of slavery, can have a full and clear idea of the destructive effects of a long and continued deficiency of nourishment. It is impossible for the poor to get employment; every person who has any property in this country, has generally slaves enough, and more than enough to do any thing he wants done; so that the poor cannot get a shilling a day for their labour, which will not afford a diet sufficient to support the system in health, in a climate where so much stimulus is necessary. I have no more doubt that starving is the general cause of dirt-eating in this climate, than I have that septic acid is the general cause of fever. Hence chlorotic symptoms and great debility ensue; a cold phlegmatic, acescent state of the stomach follows; a deficiency of bile is apparent. Stupidity of mind, torpidity of the whole system, evince a complete state of asthenia. Nature prompts the poor miserable creatures in this situation to the use of alkalies for relief; hence they begin with chalk, burnt oyster-shells, dry clay, or any other substance they can get, of an ab-

sorbent or alkaline nature.—Inward fever, or little fever, as the British physicians term it, generally originates, from preceding intermitting and remitting fever badly cured, or not cured at all. This fever mostly prevails among the poor, who are not able to obtain medical assistance, nor to furnish themselves with sufficient nourishment; great debility ensues; sickly paleness, swelling of the feet and legs, swelling of the abdomen, enlargement of the spleen, great emaciation; and at last a fatal dropsy puts a period to the existence of the unfortunate sufferers.

11. Malacia, so far as my knowledge extends, has seldom been cured in this country; and as seldom is there any opportunity of regular treatment, in consequence of the poverty of the sufferers. And we have no public institutions in this part of the country for the relief of the indigent sick. But I apprehend, and not without good reason, that this complaint might be cured by the means commonly employed in cases of a high degree of asthenia. Febricula may be cured if means are assiduously employed in the first stages of the complaint. Peruvian bark, iron, alkalies, lime-water, pills of soap, myrrh and aloes, a very nourishing diet, and moderate exercise, by travelling to more healthy countries, have often proved successful.

12. Ulcers on the legs, or sore shins, is a complaint so prevalent in this country, that I believe it may, wth propriety, be termed endemic. I imagine these sores originate from the feverish habit of the people, who live in this low, flat, marshy country. There are nearly two thirds of them infested with fever two thirds of the year; which debilitates many of them so much, especially the poor, who are not able to furnish themselves with the requisite nourishment, that they acquire what is called the tallow complexion; the skin is pale, the flesh and veins are soft and flabby, so that it is with difficulty the ascending blood from the lower extremities makes its way through the veins to the heart. Hence stagnation, swelled legs, and small tumours rise and break, or the least hurt or scratch induces inflammation, which, from the general bad habit of the system, soon changes into foul and ugly ulcers. These ulcers sometimes, from poverty and neglect, continue for years, and become very difficult to cure. Sometimes the bones become carious, and amputation seems to be the only remedy; and sometimes mortification puts a period to the existence of the sufferer. These ulcers are generally curable in the incipient state, by giving tonics internally, and a very

nourishing diet; and externally by applying caustics to eat away the foul, fungous flesh, and to alter the structure of the surface of the sore. After the fungous flesh is sufficiently cleared away, I think Baynton's plan, as delineated in the third volume of the Medical Repository, of applying sticking plaister and cold spring water, the best method I have ever experienced; yet I have some reason to think, from experiment, that the common diachylon is equally beneficial, if not superior to the sticking plaister, it being more smooth and not so irritating; it certainly agrees best with some sores. When the bones are carious, or a mortification takes place, I must refer the reader to writers on surgery.

Observations *on* Uterine Hæmorrhagy: *Communicated to the Editors by* William Darlington, *M. D. of West-Chester, Pennsylvania.*

THE diseases incident to females during the period of utero-gestation, and the difficulties which not unfrequently occur in the parturient state, must ever produce anxiety in the breast of the physician of sensibility, and prompt him to exertion in ascertaining the nature, and obviating the effects of these evils. The circumstances attending these complaints are often such as to render every hint respecting them, from writers on the subject, extremely acceptable; and where they are applicable to the existing difficulty, equally consolatory, and often serviceable. The danger which, in a greater or less degree, attends every case of uterine hæmorrhage in the advanced stages of pregnancy, must convince every one of the importance of a correct knowledge of the state of the system generally, and especially of the particular circumstances of the case. Of this truth I sometime since met with striking confirmation.

Mrs. H. who was, as she supposed, about seven months advanced in utero-gestation with her seventh child, having fatigued herself by imprudent exercise, was seized with pain in her back, which was soon succeeded by a violent hæmorrhage from the uterus. As I was from home, she waited a considerable time without sending for another physician; but the symptoms becoming urgent, a neighbouring practitioner was called in, who, finding the pulse active, bled her, recommended a recumbent posture, and gave some astringent medi-

cines. By this treatment the violence of the hæmorrhagy was checked; though, as she informed me since, there still remained a slight degree of it upon the least exertion. She, however, proceeded about her domestic concerns as usual, for near two weeks, when she was again attacked, about eleven o'clock at night, with a most profuse uterine flux. It was after three in the morning when I saw her. I found her in a state of extreme debility—pulse small and very feeble—extremities cold—and she was constantly disposed to syncope upon the least motion. The bed was perfectly deluged with the uterine discharge. I immediately gave her some thebaic tincture, which revived her considerably: she told me she was quite free from pain, and that the hæmorrhage was constant, though much diminished in degree to what it had been. As she had been so lately relieved by venesection, and the use of astringents, I concluded that the disease might be again checked by a treatment upon similar principles. Warmth was applied to her extremities, cloths wet in cold vinegar and water to the regio pubis, and stilness in an horizontal position strictly enjoined. Her pulse being low, I exhibited astringents, such as the sulphate of alumine, elixir of vitriol, &c. combined with opiates, pretty freely. At first they appeared to take some effect; but her stomach soon rejected them, and the action of discharging them soon renewed the hæmorrhage. I next tried the saccharum saturni, (acetate of lead) which has been so much extolled in hæmorrhagies; but the event showed that it could not possibly sustain its reputation in this instance. Four grains of the saccharum were given in combination with half a grain of opium; and, after waiting near an hour, the dose was repeated. A truce was obtained by this means, notwithstanding the circumstances afterwards discovered; and the patient soon after fell into a tolerably easy sleep, when I left her for a short time. It was not long before she awoke; the hæmorrhage returned, and in attempting to raise herself, an alarming fainting fit came on, which lasted upwards of half an hour. I was immediately called again, and came in just as she was recovering from the syncope. She now complained of some pain in her head, and soon after of an uneasy sensation in her back. Dissatisfied with my remedies, and not a little apprehensive for the fate of my patient, I resolved to ascertain the state of the uterus, and if the discharge of blood still continued, to turn and deliver the child. This I should have done when first called, had I not considered it my duty to endeavour to save both mother and child, and believed it

practicable from former experience. The result, however, proved it to be impossible in this case. Upon the first examination I found the vagina filled with coagulated blood; and as the hæmorrhage was but small at that time, I concluded it best not to disturb the coagulum, lest it should augment the evil; having still some hopes of preserving the child. But finding that the fluor seldom ceased altogether, and then for very short periods, I proceeded to deliver. When I reached the os internum with my finger, I was surprized to find over it a spongy substance of a granulated kind of texture, which I soon recognized to be the *placenta*. The cases related by Mr. RIGBY, in his valuable *Essay on Uterine Hæmorrhage*, immediately occurred to my mind, and I was convinced nothing but speedy delivery could save the patient. The os uteri was considerably dilated, and thereby a large portion of the placenta detached from the uterus. The cause of the hæmorrhage was evident; and it was no less plain that it would not cease until the child and secundines were brought away. I observed that the greater portion of the placenta was on one side of the os uteri, and, therefore, I readily detached it at the other side, and passed my finger up by the edge of it, instead of perforating the middle. The irritation occasioned by doing this brought on moderate, but regular pains; and as the os internum was very much relaxed from the loss of blood, I found the child would be easily expelled by the natural efforts of the system. I thereupon ruptured the membranes, the head of the fœtus descended upon the placenta, and as the latter was so nearly detached all round, protruded it before it. A few pains effected the delivery, the placenta being on the child's head somewhat in the manner of a cap. The child was dead, (evidently in consequence of the hæmorrhage) and the umbilical chord wrapped round its neck. The woman appeared better after delivery than I could have expected. She continued convalescent for some days, using tonics and nutritious diet, when I ceased to visit her regularly; first enjoining her to continue the use of strengthening remedies until she found her health re-established. As she found herself recovering fast, she soon neglected the medicine, and in about two weeks after I was called to see her again. She was now affected with a bad cough, great difficulty of breathing, so that she could not lay in an horizontal position; her legs and feet much swelled, and in short every symptom of a desperate hydrothorax. I now gave her Professor RUSH's antimonial powder, and had much better reason to be pleased

with my prescription than when I attended her before. The powders produced a copious salivation in a few days, and all her other morbid symptoms speedily vanished upon its appearance. Having kept up the ptyalism, as I judged, a sufficient length of time, that is, until the breast was perfectly relieved, and the disease apparently eradicated, tonics were again resorted to; and by a regular and continued use of these, accompanied with frictions, she was restored to a good degree of health, which she continues to enjoy at this time.

REMARKS *on the* WEATHER *and* DISEASES *in some Parts of the State of Ohio, during* 1805-6-7; *with Topographical Facts on the Country in the Neighbourhood of Belleprè. In a Memoir by Dr.* S. P. HILDRETH, *to Dr.* MITCHILL, *dated Belleprè, March* 3, 1808.

THE town of Belleprè, where the following observations were made, is situated in the state of Ohio, and on the river of the same name. It is in north latitude 39° 27′. About twenty years since this settlement was commenced by a colony of New-England people. The soil is composed of clay and loam, but mostly of clay; and generally tempered by nature in the right proportion for making brick. The settlement is immediately on, or a very little distance from the banks of the river, on what is called *first bottom*. This kind of land is generally a dead level, and under water at every high fresh. Towards the hills, which here rise at less than half a mile from the river, the land is swampy, and, in wet seasons, full of stagnant water. The hills are generally composed of a redish clay, and covered with a moderate growth of white oaks; though, by the many fragments of decaying pine, with here and there a living tree, they seem to have once been covered by a large forest of this kind of timber, which, like many nations of the earth, have become extinct, and their places supplied by others totally different. The hills are not large, and much broken by creeks, formed by the rains, springs of fresh water being here uncommon. The banks of these creeks, and of the river in many places, are lined with large quarries of free-stone, many of which afford the best of grind stones. The *bottom-lands* in this township, for the distance of ten miles, are in a very high state of cultivation; being covered in summer with large fields of corn, and

all kinds of small grain. Meadows of the finest English grass, with orchards of peaches and apples, loaded with the richest fruits, are all in the highest manner emblematical of its name, "Bellepre," or Pleasant Meadow. The dwelling houses are all of them comfortable, and many of them elegant. The winter of 1805-6 was uncommonly mild and pleasant. The summer of 1806 was excessively dry; so much so, that many of the crops were destroyed, and all, more or less, injured. The winter of 1806-7 was as remarkably cold as the preceding had been warm and pleasant; being, for two or three days in January, 37 or 38 degrees below the freezing point. The Ohio was frozen so hard, that loaded waggons, with four horses crossed on the ice. With all this cold, we had but little snow, and that of short duration. Rain was more common, but fell in no large quantities, till spring. The summer of 1806 was not only very dry, but the fields were ravaged with myriads of black worms, longer and slenderer than the common caterpillar, with light stripes running the length of the back, and free of hair. They made their appearance the last of April, and disappeared the first of June. These worms were so numerous as to cover the face of the earth in many places, and destroyed whole fields of grass and corn, while tender and young. The wheat generally escaped with the loss only of its leaves, the head and stalk remaining entire. The spring having opened very early, many peach trees were in bloom by February 25th, and all of them by the 15th of March. The spring of 1807 was more backward than usual, and uncommonly wet; the summer was not less so; and every fair day was followed and preceded by two or three wet ones. The heat was not greater than common, the thermometer never rising above 90 degrees. Books and furniture were covered with mould, unless frequently rubbed, and every farmer lost more or less of his hay, from the want of sun to cure it. There were no less than three freshes in the river Ohio, in the course of the spring and summer; the low lands were covered with water, and many fields of corn and grass were destroyed with excess of moisture. The stagnant water, in every direction, full of corrupting vegetable, and some animal matter, exhaled putridity and disease, engendered by the summer sun, and put in motion by every breeze. The inhabitants, from their situations on the bottoms, were most of them in the neighbourhood of standing water, and, of course, most of them diseased. The months of February and March were marked with catarrhal fevers; many cases of which were very obstinate and severe. They commenced with a high degree of

phlogistic diathesis; and notwithstanding the most powerfully depleting remedies were used, terminated only with a long and copious expectoration. I will just mention, it was observed, that no one who had this fever, suffered from the fever of the summer and autumn. The months of April, May, and June were characterized by no particular disease; except that in June Ophthalmia Membranarum was very rife; so much so, that a school of small children was broken up for a few days, the scholars being nearly all affected. It was more common and more severe, than had been known for many years before. By the middle of July, fever and ague, with some cases of remitting fever, were common. In August, scarcely a family in the township were free from the disorder, in some form or other. Indeed, it extended up and down the river, for several hundred miles, but was confined within a few miles of its banks; the rest of the country being healthy as usual. It began earlier at Galliopolis, and several places below here, and was much more mortal. The fever most common was the bilious remitting, though it put on every form, from the mild intermittent, to the highest grade of bilious fever, amounting, in many instances, as nearly to the *yellow fever* of our cities, as the situation would allow. It was even termed yellow fever by some. It began in the following manner: Pain in the head and limbs, yawning, bad taste in the mouth, pain in the back, rigor, followed by fever, attended with more or less of delirium. An universal tremor seized many, and in endeavouring to carry a cup to the mouth, its contents were spilt and the cup dropped. The tunica adnata was inflamed, and of a yellow cast; the skin hot and dry, in many yellow at the commencement, and in all at the end of the disorder. In one or two instances, the fever terminated in an eruption of vesicles, filled with a yellow serum; these were on the ninth day. The bowels mostly costive, and painful; the urine highly tinged with bile, and frequently emitted with pain. In one case, the disorder terminated on the fifth day, in death, with every appearance of a highly bilious cholic. The stomach was affected with a nausea, in some rising to full vomiting. A distressing thirst was felt, which nothing but cold water would satisfy. The matter thrown from the stomach, whether by art or nature, was of a dark green colour, in some verging almost to black; the dejections were of the same cast, and extremely fœtid. After cleansing the stomach and bowels, unless large and frequent doses of bark and alkalies were immediately given, they were as much loaded as ever in 36 hours. It was wonderful to see how soon the bile again collected. The

modus medendi pursued was to give an emetic of tart. antim. and assist its operation with a solution of mineral alkali, 3 ii. to a quart or less of warm water. If the emetic did not cleanse the bowels as well as stomach, the following cathartic was given a few hours after: cal. gr. 5, jalap gr. 20. This was the common dose for an adult. This, with Glauber's salts and cream of tartar, was the cathartic commonly used. There were very few cases which called for bleeding; but where it was used, it seemed to be to advantage. Blisters were applied to the back of the neck, and sinapisms to the feet. The warm-bath, or even semicupium, was found of great service, by relieving the distressing pain in the head and limbs. The stomach and bowels being cleansed, bark and snake-root were given in as large and frequent doses as the patient could possibly bear. And with these were used the different preparations of alkalies in liberal quantities, and with the best possible effect. This course, with free dilution, commonly checked the fever immediately, and frequently extinguished it entirely. The tongue was covered with a thick dark coat, in some. As fever continued, it became almost black. In the worst cases, however, the tongue *was clean;* in others, covered in the middle, with the edges clean, and *vice versa.* It was in almost every case very dry, and much chapped. Most complained of a very nauseous and bitter taste, except that some who had clean tongues complained of a sickening sweet. The months of August and September were most sickly; October was less wet and cooler. This checked the disease, and cold weather put a stop to it. Intermittents were common till the middle of winter. When the disease was not interrupted by medicine, it commonly ran from fourteen to seventeen days, unless death put a stop to it. When this was the case, it commonly happened on the fifth and ninth—some as early as the third, and some as late as the thirtieth. Many had common intermittents only, while others suffered both from this and the remitting fever. It affected all ages and sexes; children suffered most from intermittents. Many at the beginning were deprived of reason, and all showed more or less delirium. Dr. Vaughan's remedy was tried in fever and ague with success; and in the ophthalmia which preceded, as probably arising from the same cause, it was found a more useful remedy than any, applied topically in solution. Another proof of its arising from the same cause, was, that bark given internally, not only abated but cured the complaint. Influenza appeared amongst us the 1st of October. It came from the eastward, and travelled on to the west-

ward. Nothing new was discovered in its appearance. Old people suffered most from it, their cough being much more distressing than the young. Some who had fever and ague suffered very much from it, the cough being obstinate, and removed only by removing the ague. By the 1st of November influenza had left us. Towards the last of October and beginning of November, a number was seized with a disorder that had the appearance of a violent pleurisy. The patient was seized with a chill, in some amounting to an ague, followed with a violent fever, and severe pain in the side, difficult respiration, distressing cough, skin dry, and intensely hot about the præcordia, but the extremities cold. Thirst great, tongue dry and trembling; pulse small, and one hundred and ten or one hundred and twenty in a minute, a low delirium, and the eyes watery and dull, a great prostration of strength, and dejection. From the violent pain and oppression I was led to suppose bleeding would be useful. After eight or ten ounces had been taken, I discovered, by the sinking pulse and increased weakness, it was hastening the patient to his exit. The bowels were then cleansed, blisters applied to the sides, and warm moist cloths laid to the extremities. So far this treatment seemed to agree with the complaint, and the patient was somewhat better. It was evident the course commonly pursued in pleurisy would not answer here—some other must be sought—he had now been down thirty-six hours. An infusion of rad. serp. virg. ℥ ii. with ʒ ss. cort. peruv. was ordered every hour. Pulv. opii et camphor 1 grain was ordered every two hours, to relieve the pain, and bring on perspiration. This course had the happiest effect, and snatched my patient from the jaws of death.

Before this tonic course was adopted, he was every moment sinking, his eyes were glassy and dim, his hearing dull, with great languor and oppression; pulse small and very quick; the skin on his breast gave the finger a burning prickly sensation; his face covered with a cold sweat, and his knees and extremities cold. This was the first case I had of this *mock pleurisy*. A number of cases like this in every respect followed. Bleeding was avoided, the bowels were cleansed, blisters applied, bark and serp. with opium and camphor immediately given, and with such success, that all who pursued it recovered; while many who followed a different course, died.

Prospectus of Mr. RAFINESQUE SCHMALTZ'*s two intended Works on North-American Botany; the first on the new Genera and Species of Plants discovered by himself, and the second on the Natural History of the Funguses, or Mushroom-Tribe of America.*

AMONGST several works on American natural history which I mean to publish, and only want arrangement and leisure, I beg leave to acquaint you particularly with two at present, which I very probably will publish first, and very shortly, and I allow you to make whatever use you may think fit of my communications, publishing them in whole or in part.

The first work, which shall be written in Latin or French, I shall style *Nova Genera* and *Species Plantarum Borealis-Americanarum*, and it shall contain accurate descriptions and histories of all the new genusses and species of plants discovered in the United States of America, and published since Linnæus, as well as of those which, though mentioned by that great author, were by him badly described, but more particularly of all new, and undescribed genusses and species I have found, or which have been communicated to me during my travels through the United States: of such new genusses it will contain about fourteen, besides the ten of my annexed essay, on the fungus tribe, to wit:

Geanthia (colchicoides) differs from *colchicum* merely in the number of the stamens, which are only three in Pennsylvania.

Micrampelis (echinata) differs from *momordica* in the fruit, which is inflated, muricated, 2-3 locular, 2-3 spermous, in Pennsylvania.

Phemeranthus (teretifolius) is very similar to *talinum*, and is known by some botanists under the name of talinum teretifolium. Penn. and Carol.

Merasperma (dichotoma, bifurcata, cylindrical, &c.) belongs to the tribe of the *conferva*, is tubular, inarticulated, with the seeds adhering to the interior of the tubes. Pennsylvania, &c.

Heterodon, (bryoides) small moss with peristome 8-dentated, dentatures unequal. It grows in the waters of New-Jersey.

Leptuberia, (amorpha) small crustaceous lichen. Penn.

Hepataria, (erecta, cuneata, &c.) very like to the *tremella*.

Catenaria, (arenaria, vagabunda, concatenata, &c.) intermediary between some *confervæ* and *fuci*. On the sea shores.

Atheropogon, (apludoides) genus of *gramens*, near akin to the apludo. I found it in Pennsylvania; the name is of Wildenow, in Mss.

Leptopyrum, (tenellum) it belongs to the tribe of *gramens*, and is akin to the *avena*. Found in Virginia.

Florkea (palustris) was discovered by Messrs. Marshall and Muhlenberg, in Pennsylvania, and named by Wildenow. Hexandria digynia: natural order doubtful.

Forrestia, (thyrioides) near akin to *cenothus*, but 3-gynous; was found by Mr. Forrest in the northern part of the state of New-York.

Hexorima, (dichotoma) is very near to *uvularia* and *streptopus*; was found by Mr. Marshall in the Alleghany mountains of Pennsylvania.

Gaissenia, (verna) akin to *trollius*; was communicated to me by Drs. Muhlenberg and Gaissenheiner, who named it, T. Americanus. It is found in Pennsylvania.

In imitation of Aiton, Jussieu, Michaux, and other observers, who, having found several American plants badly described, classed and named, separated them, after close examination, into distinct genusses,—I have done the like in the following species.

Gelsemium, *Jussieu.*
Catalpa, *Jus.* } from the bingnonia of *Lin.*
Tecoma, *Jus.*

Caulophyllum, *Mich.* from the leontice thalictroides, *Lin.*

Jeffersonia, *Barton* and *Mich.* from podophyllum diphyllum, *Lin.*

Comptonia, *Ait.* from liquidambar.

Pentstemon, *Ait.* from chelone.

Brachystemum. *Mich.* from satureja.

Pyenanthemum, *Mich.* from clinopodium.

Lespedera, *Mich.* from hedysarum.

Liatris, *Schreber,* } from serratula.
Vernonia, *Schreb.*

Nelumbicum, *Jus.* from nymphea

Besides a variety of others, I shall re-establish in this work about thirty new genusses, from plants already mentioned in authors; but which I have, by observation, found to disagree sufficiently from the genusses where they were placed, to oblige me to separate them for the advantage of the science. These will be,

Adlumia, (cirrhosa) which is the fumaria fungosa *Aiton*, or F. recta of *Mich.*

Cucularia (bulbosa) is the fumaria cucularia, *Lin.*

Calistachya (alba) is the veronica virginica, *Lin.*

Diarina (festucoides) from the festuca diandra, *Mich.*

Kampmania (fraxinifolia), Zanthoxylum tricarpum, *Mich.*

Negundium (fraxinifolium), Acer negundo, *Lin.*

Jacksonia (trifoliata), Cleome dodecandra, *Lin.*

Cuttera (saponaria and ochroleuca), Gentiana, *Wild.*

Denckea (crinita), Gentiana crinita, *Wild.*

Persea (macrocarpa), Laurus persea, *Lin.*

Heteryta (polemonioides), Polemonium dubium, *Lin.*

Scoria (tomentosa, mucronata, alba, pyriformis, globosa, &c.) Juglans alba L. tormentosa, mucronata, *Mich.* &c. the hiccory.

Vleckia (nepetoides), Hyssopus nepetoides, *Lin.*

Chryza (borealis), Helleborus trifolius, *Lin.*

Platonia (nudiflora), Verbena nudiflora, *Lin.*

Turpinia (pubescens and glabra), Rhus aromaticum and suaveolens, *Wild.* and *Mich.*

Umsema (obtusifolia and mucronata), Pontederia cordata, *Lin.*

Macrotrys (acteoides), Actæa racemosa, *Lin.*

Spathyema (fœtida), Dracontium fœtidum, *Lin.*

Caullinia (hippurioides), Hippuris europeus, b. *Mich.*

Achroanthes (unifolia), Malaxis unifolia, *Mich.*

Kraunhia (frutescens), Glycine frutescens, *Lin.*

Savia (volubilis), Glycine monoica, *Lin.*

Apios (tuberosus), Glycine apios, *Lin.*

Triadenum (purpurascens), Hypericum virginicum, *Lin.*

Hingstonia (exaltata), Sigesbeckia occidentalis, *Lin.*

Gonotheca (helianthoides), Polymnia tetragonotheca, *Lin.*

Trachysperma (natans), Menyanthes trachysperma, *Mich.*

Besides those genusses, I shall re-establish in that work the genus *sarothra*, annihilated by Michaux, and compose it of all the *hypericums* which have few stamens and a uni-locular capsule, and those *krigia*, Schreber, (hyoseris virginica and tragopogon virginicum, *Lin.*) *taraxacum* and *jocobæ* of Tournefort; *schellera*, Schreber, *heteranthera*, Beauvais, both confounded under the name of *leptanthus* by Michaux; and I shall divide the genus *monotropa* Lin. into two, re-establishing the old genus *hypopythis*, and both shall form a separate natural order or tribe, under the name of Monotrepous.

Having found in the Flora Boreali-Americana of Michaux,

many new genusses, which had already been published under other names by different authors, or to which unappropriate names were given against the usual botanical rules, I shall rectify those errors; in the former case annulling Michaux's names and adopting the former ones, such as

Bartonia, *Wild.*—which is called centaurella by *Mich.*

Marshallia, *Schreber*—called personia by *Michaux*, while there is another genus of that name.

Brasenia, *Schreber*, called hydropeltis by *Mich.*

Muhlenbergia, *Schreber*, called dylepyrum by *Mich.*

Galax, *Lin.* called erithrorhiza by *Mich.*

While, in the latter, I shall create new names more appropriated, and I shall call

Calinux, the pyrularia of *Mich.*

Lyonia, the polygonella of do.

Dilepyrum, the orizopsis of do.

Macronax, the arundinaria of do.

Osmodium, the onosmodium of do.

Brickellia, the sponcopsis of do.

Leptemon, the crotonopsis of do.

Respecting the new species, my work will contain nearly two hundred of them, independent of those communicated in the annexed essay; all sorts of mushrooms, and of all the new species of Walter, Aiton, Michaux, and Wildenow. I will give you the names of some of the most remarkable and curious.

Xyris tenuis.
Acrosticum laciniatum.
Buplerum rupestre.
Utricularia ramosa.
aphylla.
pumila.
Hypericum revolutum.
Ophioglossum pubescens.
lineatum.
pusillum.
Bartonia uniflora.
pubescens.
Polygala spathulata.
Prenanthes humilis.
Scirpus aquatilis and sc. pauciflorus.
Panicum pumilum.
Poa tenuiflora.
Gnaphalium chrysargyrum.
Lemna minuta.
Salix grisea.
hybrida.
Galium aparinoides.
cuspidatum.
Phlox montana.
hybrida.
Asclepias villosa.
Gentiana hybrida.
Hydrocotyle dissecta.
bipinnata.
Allium cernuum.
Rumex shultzii.
spurius.
Oenothera uniflora.
undulata.
Epilobium leptophyllum.

Poa viridis.
Trillium undulatum.
pumilum.
Geum pinnatifidum.
ochroleucum.
Jacobea crassifolia.
ineana.
Orchis nivea.
picta.
Carex tenella.
disticha.
Alisma flava.
rosea.
Rhexia rosea.
obtusa.
Cirsium lutescens.
Epilobium divaricatum.
obtusiusculum.
amœnum.
cerulescens.
Polygonum setosum.
dichotomum.
Dianthus armerioides.
Nymphea crenulata
Pisum parviflorum.
Hedysarum scabrum.
Cacalia macrophylla.
Viola tenella.
heterophylla.
Typha elatior.
Chara fetidissima.
patens, &c. &c.

Besides those new species, I shall describe as new ones some others that have been considered congenial to some European species; but which, upon investigation, have appeared to me different. Among these will be my

Callitriche spuria, which is the call. verna of *Mich.*
foliosa, C. autumnalis of do.
Potamogiton epihydrum, P. natans of do.
diversifolium, P. hybridum of do.
foliosum, P. gramineum of do.
borealis, P. marinum of do.
Viburnum, lentagoides, V. lentago of *Lin. Mich.*
edulum, V. opulus var of *Mich.*
primina, V. opulus var of do.
tomentosum, V. dentatum var of do.
Erythronium angustatum, E. dens canis of do.
Trientalis borealis, T. europeus of do.
Asclepias fragrans, A. syrica of *Lin. Mich.*
Lysimachia capitellata, L. thyrsiflora, *Mich.*

Lastly, the work will be arranged according to the natural method, as exemplified by Jussieu, Ventenat, Decandolle, Mirbel, &c. with some necessary and proper changes of my own; and will contain a great variety of plates.

The second work I mentioned will be named, an essay on the natural history of the mushrooms or fungusses of the United States of America, and, if printed separately, I shall give an extract of it in the former. It is intended to be a complete treatise of all the plants of that class which have been discovered in the United States, in which I shall consider them

as forming a distinct class from the other acotyledonous plants, instead of only a tribe; and the different divisions of Persoon, in his Synopsis fungorum, will be considered by me as so many different orders or tribes. I shall describe in this work nearly eight hundred and fifty species or varieties of American mushrooms, of which one half will be new orders, and most of them elucidated by plates; name all the places and situations where they are found in the United States, and give the complete and accurate description and history of the new ones; not forgetting to enlarge on their fructification, principally for the new genusses, of which I shall have eighteen at least, besides the three already described in the annexed essay. Of these I will give you the names, &c. viz.

Astrycum, (multifidum, quinquefidum, dimidiatum, &c.) this genus belongs to the tribe of the licoperdoideous; it does not open, and the seeds are dispersed in the centre. In New-Jersey and Penn.

Piesmycus, (violaceus, nigrescens, &c.) of the licoperdeous tribe likewise, but coriaceous, with seeds pulverulent and attached to numerous interior threads, &c. In Penn.

Dycticia, (clathroides) akin to clathrus, but without volva. Found in Delaware.

Acinophora, (aurantiaca) akin to tulostoma, but bearing berry-like seeds. In Penn.

Colonnaria, (urceolata, truncata, &c.) divided into four pillars, united at the top, which bear the seeds in the margin. Found in Penn.

Cerophora, (clavata, globosa, pyriformis, thamnioides, dichotoma fastigiata, minuta, &c.) is a fine new genus, akin to *hydnum*, but the fructification is in horn-like terminal papillas. Found in different states.

Dicarphus, (rubens) very curious mushroom, with two sorts of fructifications, something like the *thelephora* uppermost, and hydnum underneath. I found it in Penn.

Priapus, (niveus) singular mushroom, which has the form of a *phallus*, and the fructification of the *hydnum*. In Virg.

Pyrisperma, (hypogea) a sort of truffle, growing under ground in the sands of New-Jersey.

Stemastrum, (boseii) it resembles a *geastrum* that should be pediculated, but bears large seeds, &c. In Virginia.

Phorima, (betulina, coccinea, minuta, &c.) resembling the sessile *boletus*, but bearing underneath small concave cavities instead of pores. Found in different states.

Leptopora (nivea, stercoraria, difformis, &c.) differs from

the sessile boletus by its substance, and being covered all over by pores. In different states.

Eriosperma, (alba, fugax, &c.) the fructification is in a wool covering them. In Penn.

Gelatina, (fœtidissima, lutea, rubra, alba, &c.) it consists in a jelly almost amorphous, growing upon wood in many states.

Xylissus, (lineatus, oblongus, cylindricus, &c.) sort of mucor growing upon wood, of which the peridium becomes a mass of seeds at maturity. Found in Penn.

Hypolepia, (Igniarias difformis, &c.) this singular production, which is called *punk* in some parts of the United States, grows under the bark of decayed trees, and resembles a piece of tinder.

Hydromycus, (tremelloides, aquosus, &c.) this mushroom joins those plants with the *tremella*. It grows in rivulets, or moist places, on the roots of trees in New-Jersey, and Penn.

Essential Generic *and* Specific Characters *of some new* Genusses *and* Species *of* Plants *observed in the United States of America, in* 1803 *and* 1804. *By Mr.* C. G. Rafinesque Schmaltz. *In a Communication to Dr.* Mitchill, *dated Palermo, Sept. 1st.* 1807.

I. *Dicotyledonous New Genusses.*

1. Phyllepidum. Pentandria digynia: natural order of the amarantheous. Calyx double, persistent, inferous, the exterior one 5 partitous, partitions lanceolated, acute: the interior one longer, and 5 partit. partitions oblongated, obtuse, emarginated. Stamens 5. Styles 2. Capsule unopened, 1 spermous. 1. *Ph. squarrosum. Squarrous phyllepidum.* Stem ramulous, leaves scaly, alternated, semi-amplexicaulous acuminated, flowers in a terminal spike. I have found this new plant in a wood, a few miles south of Baltimore, in a dry and sandy soil.

2. Shultzia. Didynamia angiospermia: natural order of the orobancheous. Calyx bipartitous, corolla tubulated, bilabious upperlip bifid, lowerlip entire: stigma settile, 1 locular, 2 valved, polyspermous. 1 *Sh. obolarioides: obolarious shultzia,* leaves opposite ovated sessile: flowers spicated, bracteated, bracteas triflorous. This new genus has been discovered and communicated to me by Mr. Shultz, who found it in Berks county in Pennsylvania; it is very near akin to obolaria.

3. Burshia. Tetrandria tetragynia: ——— akin to the proserpinaca, calyx superous 4 dentated, corolla o, stam. 4, styles 4 subulated, capsul, 4 locular, 4 spermous. *B. humilis humble burshia*, leaves pinnatifid, divisions incised, pinnatifid, acute; flowers axillary, solitarious, sessile. This new plant was first discovered by Mr. Bursh, in New-Jersey. I have since found it in the county of Sussex, state of Delaware; it is an aquatic plant, which only rises to the height of a few inches.

II. *Monocotyledonous New Genusses.*

4. Diphryllum. Gynandria monandria; natural order of the orchideous. Calyx 6 partitious, three exterior divisions linear, lanceolate acuminated, 2 interior ones lateral, upright, setaceous bifid: labellum divergent obovated, acute, entire: capsul filiform. 1 *D. bifolium two-leaved diphryllum.* Two leaves semi-opposite in the middle of the stem, semi-circular obovated; flowers spikated and loose. This new genus was first discovered in the county of Sussex, state of New-Jersey, by Dr. Kampman, and since in the county of Northampton, Pennsylvania, by the Rev. Dr. Vanvleck, and communicated to me by them and Dr. Muhlenburgh, of Lancaster.

5. Isotria. Gynandria monandria; natural order of the orchideous, calyx 6 partitous, the three exterior divisions equal, linear and long; the three interior ones shorter, oblong, obtuse, almost equal: capsul filiform. *J. verticillata, verticillated Itotria:* leaves verticillated, oblong, acuminated, flower unic, terminal, sissile, discovered and communicated to me by Dr. Vanvleck, of Nazareth, in whose neighbourhood it was found.

6. Odonectis. Gynandria, monogynia; natural order of orchideous, calyx 6 partitous; the three exterior divisions lanceolated acute; the two interior and lateral, cuneiform, emarginated: labellum cuneiform 5 dentated: capsul club-shaped. *O. verticillata, verticillated odonectis*, leaves 1, verticillated oblong, lanceolate, flowers 1-3 terminal. This plant was, I believe, first discovered by Mr. Bartram, near Philadelphia, and was since known by many American botanists under the name of arethusa verticillata, or medeoloides: I have found it in several parts of Pennsylvania, but very scarce.

7. Carpanthus. Cryptog. filices; natural order of the carpantheous, fructification: capsul axillar, solitary, globulous 1 locular semi 4 sperm dehiscent in the maturity, in 4 obtuse semi valves: seeds lenticular. *C. axillaris, axillar carpanthus:* leaves opposite, sessile, oblong, obtusinervous. This plant grows under the waters of some creeks in Pennsylvania and

New-Jersey: it may form with the genusses pillularia salvinia, lemna, marsilea, sivetes, &c. a new natural order, a kin to the ferns.

III. *Acotyledonous New Gemusses.*

8. Volvycium. Cryptogamia fungus; natural order of mushrooms; volva, surrounding all the peridium and splitting on one side at maturity, peridium globulous, gelatinous, seeds in its centre, attached to small capillaceous veins running from the centre to the circumference 1 *V. coccineum. Scarlet volvycium.* Pisiform, scarlet, volva rugged, peridium smooth. I have found this new fungus on a stump of wood on the eastern shore of Maryland.

9. Aedycia. Crypt. fungus; natural order of mushrooms; fungus without volva, tubular, perforated at the top, gelatinous, composed of utriculs containing the seeds. 1 *A. rubra* cylindrical, reddish, the top covered with a brown mucilage; found in Germantown, near Philadelphia. 2 *A. alba fusiform*, all white, found likewise near Germantown. Both have a most intolerable stinking smell.

10. Druparia. Crypt. fungus; natural order of the mushrooms; gelatinous, containing a cartilaginous peridium, in which the seeds are dispersed in a mucilaginous substance. 1 *D. violacea*, pruniform, violaceous. I have found it near Philadelphia. 2 *D. rosea*, semi-ovate, of a pale rose colour; found near Wilmington, in Delaware. 3 *D. globosa*, globular, cherry-like, reddish; found near Easton Pennsylvania.

IV. *Dicotoledonous New Species.*

1. Callitriche terrestre, terrestrial callitriche; stem procumbent spreading, leaves entire, thick, petiolated, oblong, obtuse flowers monoiceous; it is found in some moist grounds in New-Jersey and Pennsylvania.

2. Ludwigia hirtella, hairy ludwigia; stem upright, simple hirsute; leaves alternated sessile, oblongated obtuse, hirsute, flowers axillary subsessile, solitary, petals shorter than the calix. I found it near Baltimore, in a wood.

3. Ludwigia aurantiaca, oranged ludwigia; stem upright branched, leaves sessile, ovate-lanceolated, alternated, acute, smooth, flowers auxillary, petals equalling in length the calix. I found it in Newcastle county, Delaware, and Chester county, Pennsylvania: the petals are of an orange colour.

4. Ludwigia uniflora, uniflora ludwigia; stem upright simple, leaves alternated, lanceolated, acute, smooth, one flower terminal, petals longer than the calix. In New-Jersey.

5. Fumaria flavula, flavous fumatory; stem semi-angular,

leaves biternated, laciniated, peduncles opposite to the leaves, many flowered, racemous, petals three-winged, crenulated, siliqua subulated. I found it near Philadelphia; it is likewise growing in Canada, and other parts of North-America.

6. Chironea amœna, graceful chironia; stem cylindrical, dichotomous, leaves narrow-lanceolated, acute, flowers terminal, calix equalling in length the corolla, which is wheeled; grows on the sea-shores of Maryland, Delaware, and Jersey; the flowers are rose-colour, with a double star in the centre, the interior one yellow, the exterior one red. A variety has white flowers, with the same stars.

7. Polygonum inundatum, inundated; stem upright, semi-angular, leaves alternated, petiolated linear-lanceolated, very acute, spike terminal, flowers 8 androus, 2 gynous; grows in the swamps of Sussex county, in Delaware, to the height of one or two feet under water; the flowers are always above it, and always of a white rose-colour.

8. Cerastium velutinum, velvet mouse-ear; stem procumbent; leaves ovate, elliptic, obtuse, tomentous, flowers few, terminal. In Newcastle county, Delaware, and Chester county, Penn.

9. Ranunculus debilis, weak ranunculus; stem weak, leaves long petiolated, few, distant, semi-cordate, 5 fidous, incised, serrated; flowers terminal, solitary. I have found it near Germantown, in Penn.

10. Ranunculus obtusiusculus, obtuse ranunculus; stem upright, simple; leaves petiolated, lanceolated, semi-obtuse, flowers few, terminal. In New-Jersey in marshy places.

11. Eupatorium obovatum, obvated eupatory; stem upright, simple; leaves sessile, obovated, semi-serrated, acute, pubescent flowers 8-10 flosculous. It grows in Virginia.

12. Solidago pauciflora; stem simple, smooth; leaves oblong-lanceolated, acute, entire, flowers 1-5 terminal. I have found it in Glocester county, New-Jersey, and in Kent county, Delaware.

13. Solidago grandiflora, large flowered golden rod; tomentous all over, stem simple, leaves elliptic obtuse, the lower ones petiolated, the upper ones sessile; flowers semi-corymbous, many flosculous. It grows in Pennsylvania, in Berks county, &c.

14. Aster leucanthemus, white star, star wort; leaves semicuneiform, incised-serrated, flowers terminal, crown semi 10 flosculous. Grows in Virginia.

15. Smilax heterophylla, heterophyllous sarsaparilla; stem

angular, unarmed; leaves ovate-semi-cordated, or ovate-lanceolated, obtuse 7 nervous, umbells axillary, many flowered. It grows in several woods of Delaware, and the eastern shore of Maryland.

16. Quercus suberoides, suberous-oak; leaves lanceolated, very acute, smooth, unequally semi-dentated, bark suberous. In Newcastle county, Delaware, and Berks county, Penn.

17. Galium parviflorum, small flowered galium; stems diffuse, angular, smooth; leaves verticillated 5 by 5, or 6 by 6, linear lanceolated, very acute, smooth; flowers paniculated, very minute and numerous, seeds smooth. In Newcastle county, Delaware. Very rare, flowers white, exceedingly small.

18. Asclepias viridiflora green flowered asclepias; leaves lanceolated, obtuse, hirsute, umbells axillar, bending down, corniculas, without appendices. I have found it in several parts of Maryland and Pennsylvania, mostly in fields.

19. Canothus herbaceus; stem annual; leaves ovate semi-serrated smooth, flowers in a terminal thyrsus; grows near the falls of the Potowmack, between the rocks.

20. Drosera filiformis, filiformous sundew; leaves radical filiformous, adspersed of pedicilated glands, stems terminated with a spike of unilateral flowers. It grows in marshy grounds in the county of Glocester, New-Jersey, and Sussex county, Delaware.

21. Glycine pedunculosa, pedunculated glycine; stem procumbent leaflets lenceolated acute; peduncules very long, axillar angular, 2-3 flowered. It grows and is very common in some parts of New-Jersey, Maryland, Virginia, &c.

22. Amaranthus pumilus; dwarf amaranth, leaves ovate, thick, smooth, obtuse, emarginated; flowers axillar, glomerated, the male ones uppermost and 5 androus; divisions of the calyx semi-hooded. I found it on an island at Egg-Harbour, in New-Jersey.

23. Euphorbia uniflora, uniflorous euphorby; stems procumbent furcated; leaves semi-sessile, semicune-formed, marginated, peduncule solitary, terminal in the fork, one flowered. I have found it between Baltimore and Washington, in fields.

24. Verbena cuneifolia: leaves cuneiform, serrated, rugose spike terminal. It grows in several parts of Pennsylvania, Maryland and Virginia.

25. Veronica reniformis; stem procumbent, branded, leaves sessile, reniform, hairy, entire, flowers axillar, solitary. In New-Jersey.

26. Viburnum villosum; leaves ovate, serrated, hairy, umbell 5 fidous, few flowered. Grows in Pennsylvania.

27. Epilobium ciliatum, ciliated epiloby; stem simple, leaves petiolated, ovated, ciliated, acute; flowers axillary, longer than the leaves. It grows in North Pennsylvania.

28. Caltha pamassifolia; radical leaves long, petiolated, cordated, very obtuse, multinervous; stem one leafed, and one flowered, petals elliptic, pistils 5-8. In New-Jersey.

29. Arenaria imbricata, imbricated sandwort; stems semi-branched, semi-upright; leaves imbricated, subulated acerose, peduncles terminal, solitary semi-naked, 1-3 flowered, flowers 8-10 decandrous. I found it in New-Jersey, county of Glocester.

30. Gerardia maritima, maritimous gerardia; leaves linear, acute, thick, convex underneath, peduncles one flowered, equal in length to the leaves; calix crenulated, the two upper divisions of the corolla hairy. Found in the islands of Egg-Harbour, in New-Jersey.

31. Asclepias lutea, yellow asclepias; leaves petiolated, oblong, acute, base attenuated, umbel erect, petals depending, cornicules with a subulated appendice. Found neat Philadelphia.

32. Anemone pedata; leaves pedated 5 partitous, divisions laciniated, stem short, one flowered, flower six petalled. In New-Jersey.

33. Houstonia pubescens, pubescent houstony; leaves cuneiform, acute, pubescent, the lower ones semi-petiolated and lanceolate, the upper ones semi-obovate and sessile, flowers terminal in a trichotomous panicle. In Pennsylvania, and the state of Ohio.

34. Eupatorium luteum, yellow eupatory; leaves linear, cuneiform, acute, entire, smooth; flowers paniculated, calix four flowered. In New-Jersey.

35. Coreopsis flexicaulis; crooked coreopsis; stem simple flexuous, leaves linear, thickened, the lower ones attenuated, the upper ones opposite, flowers terminal, crown flowered, floscules four fid. In South New-Jersey.

V. *Monocotyledonous New Species.*

36. Trillium acuminatum; leaves ovate, acuminated, undulated, 3 nervous, peduncle erect, equally in length the leaves, divisions of the calix acuminated. North Pennsylvania.

37. Satyrium venosum; radical leaves ovate, obtuse, veined spike terminal, oblong, thick flowered, hairy; labellum concave. This plant is common all over Pennsylvania, New-Jersey,

Delaware, Maryland and Virginia, in shady woods: it has a very fine appearance, with its white veined leaves, and white flowers.

38. Alisma subcordata; semi-hearted mock-plantain; radical leaves petiolated, semi-cordate, very obtuse, flowers in a very loose panicle verticillated by threes. Common almost all over the United States of America, where it is mistaken for the alisma-plantago of Europe, which is widely different, having quite lanceolated leaves, very acute.

39. Allium triflorum, triflorous garlic; leaves plane cuneiform, lanceolated, acute, multinervous, stem cylindrical, shorter than the leaves, three flowered. In north Pennsylvania.

40. Juncus setaceus, setaceous rush; leaves filiform setaceous, smooth, stems few leaved, filiform, panicle few flowered, division of the calyx subulated. In Maryland, near Annapolis.

VI. *Acotyledonous New Species.*

41. Peziza smeraldina, emerald peziza; sessile, shining green, depressed, the upper side semi-plane. Near Easton, Penn.

42. Peziza pulcherrima, handsome peziza; semi-pedunculated, scarlet, campanulated. Found in several parts of Penn.

43. Peziza depressa, depressed peziza; semi-sessile, very depressed, whitish underneath, brown above. In Pennsylvania.

44. Peziza ochrochlora, yellow peziza; sessile, yellow campanulated, the uppermost plane. Found in Pennsylvania and New-Jersey on rotten wood.

45. Peziza alborufa, fallowhite peziza; long pedunculated white, peridium depressed, plane and fallow uppermost. In several parts of Pennsylvania.

46. Peziza attrata, blackish peziza; pedunculated, blackish peridium campanulated. In Pennsylvania and New-Jersey.

47. Peziza globulosa, globulous peziza; pedunculated brown, peridium globular. In Pennsylvania.

48. Peziza cupularia; cupped peziza; semi-pedunculated yellowish, long campanulated. In Delaware.

49. Clavaria lepidorhiza, scalyroot clubber; clubbed, fistulous, aggregated, reddish, root and base scaly, the top rounded. Found in Maryland, near Havre de Grace.

50. Clavaria citrina, citrinous clubber; cylindric, fistulous, aggregated, yellowish, top attenuated semi-obtuse. In Pennsylvania.

51. Clavaria citrinofusca, brown and citrinous clubber; semi-aggregated, subulated, yellow, top brown acute. In Pennsylvania.

52. Clavaria bicolor, two-coloured clubber; aggregated, clubbed, blue, top obtuse, rose colour. In Virginia.

53. Clavaria tricolor, three-coloured clubber; pedunculated, peridium obovated, base greenish, middle yellow, top rounded and reddish. In Maryland.

54. Clavaria dryophylla, oak-leaf clubber; pedunculated, peridium cylindric, obtuse, yellow. In Pennsylvania.

55. Thelephora aurantiaca, oranged thelephora; semi-pedunculated, irregular, orange colour, nervous, edges lobated, undulated. Common in most of the middle states.

56. Thelephora semi-campanulata, semi-campanulated thelephora; pedunculated, campanulated, yellow, upper part concave, semi-campanulated. In Pennsylvania.

57. Hydnum cærulescens, bluish hydnum; semi-aggregated, semi-pedunculated, semi-clubbed, truncated, bluish. Found in New-Jersey, near Burlington.

58. Hydnum barbatum, bearded hydnum; pedunculated, whitish, peridium obovated, irregularly truncated, barb slender. Found near Lewistown, in Delaware.

59. Hydnum dilatatum, dilatated hydnum; short, pedunculated, yellowish, peridium broad, depressed, a little convex uppermost and underneath. Near Easton, Pennsylvania.

60. Hydnum citrinum, citrinous hydnum; long pedunculated, light yellow, peridium round, convex uppermost and underneath. Near West-Chester, in Pennsylvania.

An Essay *on the* Temperature *of the* Seasons *in different Years, and on the Course of the* Winds, *particularly upon the Atlantic Ocean in the Northern Temperate Zone, and the Countries adjoining that Ocean. By* Mark Leavenworth, *Esq. Written in France,* 1807, *and communicated for the Medical Repository by* Samuel Russel, *Esq.*

Section 1. *Cause of the Varieties in the Seasons.*

WHY are some of our winters colder than others? Why are some of our summers hot and dry, and others mild and moist?

The earth is very nearly in the same position, relative to the sun, on every day of any one year, that it is on the corresponding day of every other year.

There seems then to be no reason to believe that there is

greatly more heat on the globe in one year than in another, nor even more in a certain season of one year than in the corresponding season of another. It seems probable that the principal difference in the degree of heat on any particular part of the earth, in different years, must depend on the different distribution of it.

As to wet and dry seasons, perhaps there is no great difference between the quantity of water which falls in rain on the whole globe in different years; but if any considerable difference in this respect does exist, it may perhaps appear probable, in the course of our discussion, that this difference is mostly, if not wholly, due exactly to the cause which makes the great difference in the distribution of heat and cold.

It is apparent, that of all the means which nature employs to distribute differently heat and cold, the variable winds are infinitely the most efficacious; so that they may be regarded almost as the sole cause.

A long continued wind from the ocean brings rain; from land it brings clear weather.

A land wind brings rigorous cold in winter, particularly if from the north; in summer it brings drought, and if from the south, great heat; but a wind from the ocean is neither extremely cold in winter, nor extremely hot in summer.

All, or nearly all the varieties of temperature which we experience in different years, at the same season of the year, depend, therefore, on the course of the winds; consequently, if any serious attempt is ever made to calculate or even to form any conjecture relative to this variety in the seasons, it must be founded on a knowledge of the course of the winds.

SECTION 2. *Prevailing Winds, in our Climates, and indeed in all Parts of the Globe, are produced by divers causes.*

There is little reason to doubt that something like chemical analysis and synthesis often occurs in the atmosphere, and suddenly augments or diminishes the volume of air in certain regions, and thereby produces a sudden and violent blast of wind. The hurricanes which blow with great violence, in a breadth sometimes of less than a league, and sometimes of two or three leagues or more, and extend several times that distance in length, are perhaps generally occasioned by something of that nature. But whatever may be the cause of such winds, they are neither extensive enough, nor durable enough to materially affect the temperature of the seasons.

The winds relative to which we are inquiting, are those

which are habitual in our region; which blow long in one direction, and, consequently, come from a distance, affected with the heat or cold, the moisture or drought, of the great regions over which they have passed. It is only the prevailing winds which can characterize our seasons, and these have a very different cause from that of the short hurricanes we have mentioned.

The Atlantic ocean, the western parts of Europe and of Africa, with the eastern coasts of North and South-America, are all placed in the same circulation of air; or rather, it is in some sense a double circulation which occupies all that ocean and the adjoining coasts, from about sixty degrees af north latitude, to probably as much south latitude.

In the equatorial latitudes of this region, the wind blows constantly from east to west, from the coast of Africa to the coast of America: it is there called the trade wind. When these trade winds reach the coast of America, they are interrupted, that continent limiting their course in that direction.

As these winds do not blow across the continent of America, the necessary consequence is, that the air they have brought must turn to the north and to the south, and then must come back to fill the partial vacuum constantly occasioned on the western coast of Africa, by the air being drawn away in the trades. Thus the portion of the air brought by the trades, which, when interrupted in its course by the continent of America, turns to the north, comes across the Atlantic in the northern temperate zone to the coast of Europe; then turning southward, goes again into the trades on or near the coast of Africa. That part of the air, which, on the interruption of the trades at the coast of America, turned south, recrosses the Atlantic in the southern temperate zone, and coming to the coast of Africa, turns north, and again joins the trades on that coast.

Thus the trades really form a double circulation, like two circuits somewhat elliptical, placed one north and the other south of the equator, but so near each other as to come in contact and blend their contiguous sides into one current in the equatorial latitudes, thereby forming the trades.

The region of calms, placed just north of the trades, and well known to our seamen, is the centre round which the air of the northern circuit moves: a similar region of calms, placed just south of the trades, is the centre round which the air of the southern part of the circulation moves.

The existence of this double circulation results so neces-

sarily from the known fact of the existence of the trades, and of their interruption on arriving at the coast of America, that it can scarcely want proof from tables of observations. But that westerly winds are the prevailing winds on the Atlantic, in the temperate zone, is known to every one who has any knowledge of that navigation; and the tables of observations prove that, on the coast of Europe, in all those latitudes, the wind blows full three-fourths of the time from the western board.

If no circumstance was to occur to interrupt this circulation, we should have as constant westerly winds in the temperate zones, as we have easterly in the regions of the trades. But as the two regions over which the air would pass in its course from west to east, are vastly broader than the one region of the trades by which it goes from east to west, the air in such an uninterrupted circulation would move much slower in its course from west to east, in the two temperate zones, than it does in the opposite course, in the one narrow region of the trades.

It is the interruption of this circulation which makes our variable winds, and causes most of the differences we find between the temperature and fertility of seasons in different years.

Section 3. *Effects of our prevailing Winds.*

Before inquiring into the causes which interrupt the uniform circulation of the trade winds, and thereby create our variable winds, let us take notice of some of the known effects which result from the circulation we have described, such as it actually exists, notwithstanding all the interruptions.

On the west coast of Africa, in the equatorial latitudes, there is an almost perpetual land wind, the air being drawn away to the west in the trades; the consequence is, that the earth is so parched, and the drought so great, that it is scarcely habitable.

In the same latitudes on the opposite coast, that of America, the earth is very fertile, and sufficiently watered, because the same trade wind is there a sea wind.

North of the trades, on the east coast of America, occupied by the United States, the prevailing winds are from the west; because the air of the trades is there returning across the Atlantic to the coast of Europe. Westerly winds on that coast are from the land; and the consequence is, that the winters of that country are much more cold, and the summers more hot, than in the same latitudes in Europe, where this wind is from the sea.

It is owing to this westerly wind, which in the United States is a land wind, that their coast is not only hot in summer, but very subject to droughts; and would be still much more so, if it were not for another circumstance we shall soon mention. But on the west coast of Europe, this same wind is a sea wind; and those parts of Europe which are most exposed to it, as in Ireland, very far from suffering habitually by drought, much oftener suffer by too much rain.

The trade winds are produced by a combination of different causes, as will be mentioned hereafter. Of these causes the influence of the sun is one, which is so efficacious, that the principal force of the trades is generally at or near the part in which this influence operates more directly; consequently, the region of the principal force of the trade winds moves with the sun from the neighbourhood of one tropic to that of the other; and in our winters, when the principal force of the trades is near the southern tropic, the whole circulation of air is so far south, that Paris, though sufficiently in the circuit to derive its habitual winds from it, is still so near the north-east corner of it, and receives the westerly winds so much broken by lands at the west, that it has less westerly wind and less rain than England, Ireland, Britanny, and many other parts. But in our summers, the region of the trades being removed near to the northern tropic, the whole circuit of air is removed so far north, that Paris is more fully in the force of it; and this is probably the reason that there is so much more rain in summer than in winter. I have been told that the tables of observations prove that there is three times as much in summer as in winter.

A similar cause affects very favourably the climate of the United States. In winter, when the region of the trades is far south, and their course stopped by the coast of South-America, the United States are so much on the north-west border of the circuit of air, that they have much north-west wind, which brings clear dry weather, but which would probably increase the droughts of that country, if these winds were to prevail as much in summer as they do in winter. But in summer, the region of the trades being near the northern tropic, and the trades extending into the Bay of Mexico, the United States, more fully in the circuit of this air, have a great portion of south-west wind, and even south winds; both of which are more or less sea winds, and prevent the droughts, which the north-west winds of their winters would produce, if they prevailed in summer as much as in winter.

SECTION 4. *Cause of the Equinoctial Gales.*

Our equinoctial gales seem also to depend on the movement of the region of the trades.

As the region of the principal force of the trades moves with the sun from the neighbourhood of one tropic to that of the other, it passes the equator at each equinox; but as neither the sun nor the region of the trade winds make any materially more or less delay at the equatorial line than at any other parallel of latitude near it, the mere passing that line does not seem at first sight to threaten any remarkable derangement in the ordinary course of the air.

At the time of the solstices, the region of the trades rests about twice as long on the same parallels of latitude, as it does at any one time on the intermediate parallels; it there comes to a stop in its progress in one direction, and taking the opposite direction, returns towards the other tropic. These circumstances might perhaps be expected to produce some changes, but no remarkable interruption of the regular circulation of air seems to occur at the solstices.

The author of this essay does indeed entertain an idea, that in Paris and its neighbourhood, the last five days of June, and three first days of July, usually produce more rain than any other eight days in the year; but, as he is suspicious that this opinion may have been produced by the great inconvenience that rains at that time have produced on his hay harvests, which are to him important, he will be under obligations to any one who may be able to ascertain this fact, by tables of observations, and to tell us how it is. If it is such as he has supposed, it may, perhaps, be attributed to the long residence of the trades, near those tropical latitudes, exactly at the time that Paris is most fully in the circuit of the air; and it is proof, not of an interruption in the circulation of the air, but rather of an unusually long circulation without interruption.

The equinoctial gales appear to be occasioned by the figure of the western coast of Africa, and of the eastern coast of America, at and near the equator, which at the time of these gales, is the region of the principal force of the trade winds. To this circumstance must also be added, the superior force of the trades which usually take place at that period, the cause of which will be explained when we come to treat of the cause of the trade winds.

The coasts of both Africa and America extend, generally, from north to south, but almost exactly under the equator they both take an east and west direction; so that the coast of Ame-

rica, directly under the equator, or very little north of it, lies at a vast distance farther west than it does only a few leagues farther south. The opposite coast, that of Africa, in the same latitudes, also takes a figure, in this respect, similar; but as the coast of Africa is at the other extreme of the circuit, the effect is somewhat different from what is produced by the figure of the coast of America.

When the region of the trades passes the equator, at the autumnal equinox, in its progress southward, a great part of the air of the trades meets the coast of America, and is interrupted in its course, at twenty or thirty degrees farther east than it had been previous to the equinox, when the principal region of the trades was north of the equator.

The consequence of this change of position, in the region of the trades, is, that the Gulf of Mexico and the great bay, or rather ocean, in which the Antilles are placed, are suddenly deprived of a large portion of the air of these winds, with which, till then, they had been habitually supplied.

At the vernal equinox exactly the contrary happens; for as soon as the region of the principal force of the trades passes the equator, in its passage northward, a great part of the air, brought by the trades, which had, till then, been stopped on the coast of Brazil, is now suddenly carried on many degrees farther west; and, consequently, carries a vast quantity of air to the region of the Antilles, and to the Gulf of Mexico.

The effect of suddenly depriving this great bay, and the Gulf of Mexico, of the usual quantity of air, at the autumnal equinox, and of suddenly bringing to them an unusual quantity, at the vernal equinox, is, in both cases, to produce violent winds, which are first and most felt in the Antilles, in the Gulf of Mexico, and on the neighbouring coast of America, but which at times affect every part of this great circuit of air.

When we come to consider the combination of different causes which produce the trade winds, we see that the region of their principal force, in its progress from the neighbourhood of one tropic to that of the other, must pass the equinoctial line sometimes a few days before the equinox, sometimes exactly at that period, and sometimes a few days later, and this is probably the reason these equinoctial gales have the same apparent irregularity. We shall also see that the trade winds generally are in their greatest force about the time of the equinox.

The course of the equinoctial winds can never be calculated;

for they blow, as might be expected, in every direction at different times, and seldom long in any one direction. These winds, not being very durable, or, at least, not blowing long in one direction, have no sensible effect on the temperature of the seasons. The same observation has been made relative to the short hurricanes we have mentioned; and is equally applicable to the sea and land breezes round islands and shores, especially in hot climates; to the winds occasioned by local rarefactions and condensations; to the light winds which, in many places, blow near the sea shore, and subside or change direction with the tides, particularly at those times when there is no other prevailing course of air near the place.

Section 5. *Interruptions of the circulation of the air of the trades.*

These winds, of short duration, and little extent, all proceed from quite other causes than those which occasion the north-west winds in the United States of America and the north and north-east winds in France, which, whenever they long prevail, bring cold winters, cold, backward springs, and dry summers.

These winds, as well as others which we shall have occasion to mention, depend directly on the interruptions of the regular circulation of the air of the trades. These interruptions being the cause of all the variable winds of any considerable extent and duration in that part of the northern temperate zone which is occupied by that circulation, it is important to ascertain the cause of them.

There are several parts of this circuit (we are now speaking of the northern circuit), in which no interruption of any considerable importance occurs. In the trades, which form the south side, there is no interruption which can produce the winds after which we are now inquiring, for they blow constantly from east to west. Whatever interruptions there may be on the coast of Africa where the trades begin, it does not seem that they are of a nature to affect the course of the air on its return eastward across the Atlantic in the temperate zone; and on that part of the Atlantic over which this air returns from America, there are neither islands or other lands which seem capable of creating great interruptions.

It would, therefore, seem probable that the causes of these variable winds must be found in some circumstance, or in some occasional events on the coast of America, particularly at the point where the course of the trades is stopped, and the

air turns northward, and soon after north-eastward along the coast.

Although the trade wind does not blow habitually across the continent, nor is the east wind an usual wind on that part of the continent, except near the sea, still there are times when the wind blows from the east on that land; that is, there are times when the air of the trades is not wholly stopped by the land, but a part of it is drawn away out of the usual circuit and crosses the continent.

Whenever this happens, the south-west corner of the great circuit of air in which we are placed, that corner at which the trades are stopped by the continent of America, does not receive its usual supply of air, and, consequently, a partial vacuum is created, just north of the trades, which cannot be supplied with air from the south nor from the west; for on the south is the trade wind which is passing to the west, and thereby causes this vacuum; and the same cause which draws the air of the trades to the west, will, as long as it continues, prevent any air returning from west to east, to restore the equilibrium at this place. The consequence of this circumstance is, that, to restore the equilibrium, the air must come from the north and east, that is, from the north-east. But to supply the first partial vacuum is not all; for as soon as the air from the north-east has arrived at the point were this partial vacuum existed, it is in contact with those very trades which are passing over the continent, and, consequently, is drawn away with the trades by the same cause which draws away the trades themselves; and this continues till the cause ceases, which is usually some days.

Those circumstances necessarily produce the well-known north-east winds which blow along the coast of America from the banks of Newfoundland, and perhaps sometimes from still farther north, to the south-west, as far as the Gulf of Mexico, in a course directly opposite to that of the general course of the air, when performing the ordinary uninterrupted circulation. These are, except the trades, the most strongly characterised winds in the region of our northern circuit.

The proof that these north-east winds are in fact occasioned by the cause we have mentioned, does not depend solely on the strong probability that a partial vacuum of this nature must sometimes be produced in the way we have mentioned, and the knowledge that such a vacuum must necessarily produce this effect, or some effect of this nature; for there are two well known facts which corroborate the opinion.

One of those facts was first communicated to the public by Franklin, while he was proprietor and editor of a journal at Philadelphia. His occupation obliged him to examine the newspapers from each end of the United States, then separate colonies; and as those winds occur usually several times in a year, it happens frequently that one of them is sufficiently remarkable, either for the damage it may occasion, or for some other reason, to be noticed in most of those papers. He observed that those winds were uniformly mentioned as blowing one, two, or three days sooner in the extreme south-west parts, near the Gulf of Mexico, than they were found to do at the north-east, towards the banks of Newfoundland. Since that time, the same observation has often been made, and the fact is found uniformly the same; that is, they begin to blow at leeward; consequently they must be caused by a partial vacuum, and not by a surplus.

The other fact relates to the manner in which these winds terminate. They begin to blow from the north-east, after some time become easterly, then southerly, and, finally, south-westerly. This is the invariable character of them, and very often they do not abate in their violence till after they begin to blow from the south-west, which is the course of the air in those parts, when performing the circulation which results from the trades.

This is exactly what might be expected from those winds, if they were produced by the partial vacuum which we have described at their south-west extremity, as will be seen by those who examine the subject a little geometrically.

Hitherto we have spoken only of the air of the trades passing west across the continent of America, as the cause of the north-east winds along the coast of that continent; and, consequently, of the air of a great part of our circuit taking an opposite direction to that of the usual circulation.

It will, however, occur to every body, that as the air of the trades, when stopped by the continent of America, turns south as well as north, and supplies both the northern and southern circuits, it must frequently happen that one of these circuits receives more and the other less than the usual proportion of this air. When we, in the northern circuit, receive more than our usual proportion, it may, in general, not produce any considerable interruption of the circulation in our circuit; for more than our proportion of the air of the trades would not probably come into our circuit, if some cause did not draw it there which is capable of continuing it in the circulation.

The principal effect of our receiving more than our proportion of this air may be only to produce a somewhat stronger wind from the westward across the Atlantic, in the usual course of the circulation of the air of the trades. But whenever the whole air of the trades, or nearly the whole, is drawn away into the southern circuit, it must produce nearly the same interruption in our circuit as if it went across the continent; and there can be little doubt but a great part of the north-east winds on the coast of America, particularly in winter, do arise from this cause, as well as from the air of the trades going across the continent.

It is very possible that the north-east winds, produced by the air of the trades going into the southern circuit, may differ somewhat from those produced by the air passing across the continent; especially at their commencement they may differ a little in their direction. It is not impossible that these differences may be such that they may be distinguished by their appearance, in some future day, when they shall have been more studied; but their effect on the coast of Europe must be nearly the same, whether they arise from the one or the other of these causes.

The first effect of these north-east winds is to deprive the Atlantic, in the northern temperate zone, of the usual supply of air; for that air, which, in the usual circulation, would arrive from the trades by the coast of North-America, is now carried back to the Gulf of Mexico, and thence out of our circuit. This instantly destroys the equilibrium on the Atlantic, where a deficiency of air is produced, which cannot be restored from the west nor from the south; for at the west the air is going by the north-east winds to the Gulf of Mexico, or the continent of South-America, and on the south the trades are carrying it west to the same point. Nor can this equilibrium be restored by air from the south-east, for there it is drawn along the coast of Africa, to supply the deficiency constantly occasioned on that coast by the trade winds, which draw away the air to the west. Consequently, this equilibrium can only be restored on the Atlantic by air from the continent of Europe, or from the more northern parts of the Atlantic ocean, which necessarily produces east winds or north-east winds on our continent, and particularly in France and the other parts near the western shore of Europe.

East or north-east winds in France seem to be so necessarily the effect of the drawing away the air of the trades out of our circuit, at the continent of America, that it may be believed they never fail to result from that event.

Our south and south-west winds in France are, perhaps, generally produced by the same cause; that is, when the air of the trades goes for some time out of our northern circuit, either into the southern circuit or across the continent of America, the north-east winds along the shore of North-America are produced, and, consequently, east or north-east winds on the continent of Europe, which continue to blow till the air of the trades comes in the usual course by the west winds, to fill the partial vacuum constantly created on the coast of Africa, where the trades begin. But when, after several days intermission, the air, from the circulation of the trades, arrives again on the coast of Africa, the place is already occupied by air from our east and north-east winds, or other winds from the continent; consequently, in lieu of a partial vacuum, as before, there is now a surplus, *(trop plein)* beyond what the trades can take away, and this surplus cannot escape by the south nor by the west; for at the south are the trades, which, indeed, take a good part of the whole, but cannot take the surplus; and on the west is a west wind; consequently, so much of this double supply as cannot go away by the trades, goes north or north-east, and forms our south or south-west winds: and this may be regarded as the termination of our easterly winds; for as soon as this surplus is passed away, we are in the westerly winds of the great circulation.

It seems very probable that all the ordinary winds, not only of France, but of the Atlantic and adjacent shores, in a great part of the temperate zone, are to be attributed to the circulation of the air of the trades, or to the interruptions of that circulation on the coast of America: it, however, cannot be presumed, that the winds of any part of this extensive region are altogether free from the influence of other causes; near the exterior parts of the circuit in particular, the influence of neighbouring circulations must be considerable. But if we could foresee exactly when and to what degree the interruptions of this circulation in the northern circuit would happen, we should have made great progress in the science; for we should by this knowledge, not only be able to estimate the effect of the causes which operate most immediately in producing our variable winds, but we should have many of the elements for calculating the variations in the neighbouring circulations, which in their effects have an influence on the circulation in which we are placed. We are, however, very far from possessing sufficient data for these calculations.

(To be continued.)

EXPERIMENTS *concerning the* INFLUENCE *which the* NERVES *of the* LUNGS *exercise on* RESPIRATION.* *Read before the National Institute, by Mr.* DUPUYTREN, *Principal of the Anatomical Labours of the College of Medicine, at Paris, second Surgeon of the Hotel Dieu, &c. &c. Translated for the Medical Repository.*

THE memoir, which I have the honour to present to the Institute, contains an account of experiments made with the intention of determining the kind and degree of the vital influence of the lungs, on the change of properties which the venous blood undergoes in traversing these organs.

Some years ago two opinions started up concerning the primary cause of respiration in animals. According to one of those opinions, life is as necessary for the exercise of respiration, as for that of all the other vital functions: in vain would the air penetrate into the chest, and be put in contact with the blood, if the lungs did not possess vitality: without this, respiration could not take place.

According to the other opinion, when the air enters the lungs, and the venous blood has been carried there by the vessels, the action of chemical affinities is sufficient to carry on the respiration through the thin coats which separate these two fluids.

This second opinion, supported by some experiments, had been adopted by all those who love more to establish their ideas on facts, though insufficient, than upon assertions unsupported by proofs.

In this state of the science, the partizans of vital, and those of chemical causes, applied to the explanation of the phenomena of life, will doubtless consider the question, which I propose to examine, as being already resolved by their principles: it is, nevertheless, far from being so by facts. It is not because no experiments have been already tried, analogous to those which I propose to exhibit; but that almost all have been made with intentions very different from ours, and it does not appear that they perceived the result to which we have been conducted.

It is thus that Haighton, Cruickshanks, Meyer, and others, have practised the division of the eighth pair of nerves, which

* I made these experiments, as well as many others, in concert with M. Dupuy, Professor of the Veterinary School at Alfort; and we propose, if it please the Institute, to give, in the form of memoirs, the results which those experiments have furnished.

furnish those of the lungs, with the sole view of observing the reproduction of nerves; and one may be convinced, in examining the relation they have given of these experiments, that they did not even seek for the cause of the death of animals, of whom they cut at once the two nerves of the eighth pair.

Bichat is the only author, known to me, who occupied himself with the influence which the brain exercises upon respiration, by means of the eighth pair; and I cannot dissemble that his experiments* led him to conclude, that this organ has no direct influence upon this function; but I ought also to observe that his principal design was to determine whether it be by a cessation of the action of the pectoral muscles, or by that of the lungs, that life is destroyed when the brain is injured: he must have found, what is true, that, in this case, death takes place more suddenly by an interruption of the motions of the breast, than by a cessation of the life of the lungs. If Bichat had not stopped at this first result, he would not have failed to perceive a second means of influence of the brain upon the lungs, which I shall now endeavour to demonstrate.

Our aim being to determine the influence of life over the changes which the blood undergoes in the lungs, it would have been important to find a means of destroying, or at least suspending it completely in these organs; after this we might easily judge to what extent life is necessary to the exercise of respiration; but as this extinction, or even suspension could not be effected without destroying the general life, it was necessary to have recourse to other means.

We know that among animals a little elevated in the scale of being, life results, in all parts, from a certain number of actions; for example, from that of the nerves, arteries, &c. and that it cannot long subsist when one or other is destroyed. Therefore, it is evident, that if, in destroying one of the necessary conditions, by the influence of which life is exercised on the lungs, we cause respiration to cease, we cannot hesitate to attribute to the whole life a power equal at least to one of those conditions. Pursuing this idea, we fixed our view on the nerves of the eighth pair, which furnish those of the lungs, they being the instruments by which we can most easily modify the life of the lungs, without attacking that of the neighbouring parts.

In this case, in which a change of the pulmonary nerves would not have brought on a change in respiration, we could

* Recherches Physiologyques sur la vie et la mort, p. 370.

draw no conclusion from these experiments against the influence of life on this function: we might always have supposed, that by a greater attack against the life of the lungs, respiration would cease: but if the last happened to be considerably changed, or entirely suspended by an injury done to the pulmonary nerves, the conclusion, from our experiments, in favour of the influence of life on the exercise of respiration, would become more rigorous, as we shall endeavour to show.

Before we enter into a detail of our experiments, we wish to have permission to notice some known facts concerning respiration. This function depends *on the intimate and reciprocal action of the air on the blood of animals:* it has for its object, to render this last liquid proper to excite and nourish their parts. In man, and in several other animals, this function is performed by the aid of two sorts of organs; the one muscular, destined to draw air into the breast, and to expel it alternately; the other vesicular and vascular, fit for receiving the external air, and proper for the passage of the blood which the circulation brings from the different parts of the body. It is in the lungs only that respiration takes place: the other mentioned organs afford the means employed by nature to facilitate its exercise.

The lungs have not, like other organs, a pair of nerves proper to themselves. Those which they receive proceed chiefly from the eighth pair.

These two nerves spring from the sides and commencement of the spinal marrow; when they leave the cranium they distribute many branches to the pharynx; they afterwards traverse the anterior and lateral parts of the neck, and, in this passage, they furnish the superior nerves of the larynx, and some twigs destined for the heart. They then sink into the chest, where they give out some branches, which, united to others, proceeding from the great sympathetic, form the anterior pulmonary plexus. They afterwards give out the inferior nerves of the larynx, and soon afterwards a very considerable number of threads, the re-union of which constitutes the posterior pulmonary plexus, from which the greater part of the nerves of the lungs proceed.

The pulmonary nerves are not indifferently distributed throughout the whole extent of the lungs: but, according to the observation of Scarpa, in the explanation of the fifth table of his excellent work on the nerves of the heart and the lungs, they accompany the *bronchia* and their divisions, to which they are intimately connected, and they appear much less des-

tined to the *parenchymatous* tissue of the lungs, than to the sides of the aerial canals, and the membrane which lines them.

Having given rise to this plexus, the nerves of the eighth pair descend around the œsophagus, penetrate the abdomen, distribute themselves to the stomach, liver, gall-bladder, spleen, duodenum, and to many other parts, by means of the solar plexus.

Besides the branches which the eighth pair send to the lungs, they receive other nerves which spring from the superior cervical ganglions, from the middle and inferior of the grand sympathetic, and from its first thoracic ganglion. These nerves, in some sort redundant, serve to explain a remarkable circumstance in our experiments.

We commenced our experiments in laying bare the nerve of the eighth pair of a horse, by an incision made on the side of the neck; and after having separated this nerve from the great sympathetic, with which it is connected by a very weak cellular tissue, we cut it without perceiving symptoms of great pain, and without finding that the respiration of the animal was sensibly affected. We only observed a slight commotion in the circulation: his lips became of a light violet colour; which did not, however, prevent him, when free from restraint, to rise, walk, eat and drink as usual; in short, no severe consequence resulted from cutting the nerve of the eighth pair, and, in a short time, the wound made in the neck was healed.

Some days after having performed this operation on the eighth pair of one side, we threw down a gelding, of a dapple grey colour, seven or eight years old, and strong, although attacked with the glanders. We began by cutting one of the nerves of the eighth pair, and he showed no greater signs of pain or disorder in the pulmonary functions than the former; but we had scarcely begun to cut the second nerve of the eighth pair, when the horse exhibited the most extraordinary agitations; and we had no sooner cut this nerve, than the horse, opening his mouth, dilating his nostrils, stretching the neck, and exercising all his inspiratory powers, breathed painfully by the mouth and nostrils, and uttered a horribly plaintive sound, similar to that of broken winded horses, but stronger and more frightful. At the same time he made violent and fruitless efforts to vomit. The lips, tongue, and interior of the mouth became of a red violet, and afterwards of a livid colour.

Soon afterwards he rose, but already weakened and agitated by general *convulsive motions:* his gait was irregular; he lay

down, stretched himself out, rolled several times upon the earth; and after an hour and a half he expired amidst torments horrible to be seen, and difficult to paint. On opening his body we found that the nerves of the eighth pair had been entirely cut, and even that one of the great sympathetics had been slightly injured.

Being convinced, by repeating our experiments several times, that the same consequences always resulted from them, with some slight differences relative to the intensity of the symptoms and their duration—differences which sometimes depended on the strength of the animals, and at other times on the division more or less complete of the nerves of the eighth pair, and the injury done to the great sympathetics, we sought what might be the immediate cause of these horrible phenomena. Already we suspected that they depended on the interruption of sanguification in the lungs. To decide this, we threw down a horse, of an ugly black colour, fifteen or sixteen years old, having the glanders, and also the spavin in one leg. We laid bare successively the two nerves of the eighth pair, and the facial artery of one side; we afterwards opened this artery, and being satisfied that the blood which flowed from it was of a red vermilion colour, we cut, almost at the same moment, the two nerves of the eighth pair. We saw manifested, at the same instant, the same symptoms which we have already described. Having then caused the blood to flow from the open artery, it appeared black, instead of the red appearance it before assumed. In a short time this blood acquired such an intensity, that it was difficult to conceive how the general life could be supported by blood, which had, to such a great degree, the appearances of venous blood. Having verified this remarkable change, by an examination many times repeated, of the blood which this open artery afforded, and by a comparison which we established, by several repetitions, between this blood and that of a sound horse; we wished to examine the state of that which the veins contained, and, with surprise, we observed that it was still more black than that of the arteries.

We repeated this experiment often, and always observed the same effects, when the experiment was exactly repeated. Without referring to this point more particular details, the following is the result of the experiments we made.

The horses of which we cut one of the nerves of the eighth pair experienced only a slight inconvenience; the colour of their blood was scarcely changed, and they were soon completely healed.

Those of which we cut the nerve of the eighth pair of one side and a half, or two thirds of that of the other, at first experienced all the consequences which ensue from a complete section of the two nerves; but after some hours the pains abate, and if the animals are not disturbed, or compelled to run, they are healed; and we see, with surprise, that the sixth, and sometimes a small portion of the eighth pair of nerves, is sufficient to support respiration. As often as we compel the horses to gallop, even for some minutes only, the symptoms arising from the section of the nerves are immediately aggravated, and often terminate in the death of the animal submitted to the experiment. We made this remark particularly on a horse in which we left no more than a seventh of the nerves of the eighth pair. A month after the experiment he showed all the signs of good health; and then, when we forced him to run the distance of two hundred metres, he began to blow, respiring by the nose and mouth; he lay down and rolled on the earth; his body was covered with sweat; his blood became black, and it was not before half an hour that these appearances went off. They were afterwards renewed as often as we forced him to gallop.

The section of the two nerves made at once upon the same horse occasions greater sufferings, and it becomes fatal in a space of time which is never less than half an hour, and never more than two hours.

The usual phenomena of this last section is a violent agitation of all the members; the efforts to vomit in the horse are useless—the mouth is open; the nostrils dilated; a plaintive and strong sound is emitted, which announces pain and anguish; the arterial blood becomes black—a colour which is always stronger in the veins than in the arteries.

These experiments were not confined to horses only, they were made on dogs also; and the following is the substance of the results they afforded. It will not be useless to remark, that it is very difficult to detach in these animals the great sympathetic nerve from that of the eighth pair, because the last presents a species of canal from which the former must be disengaged if we propose not to include it in the section of the nerves of the eighth pair.

When we have succeeded in isolating these nerves, and have cut that of the eighth pair on one side, the animal scarcely appears to suffer. But if this nerve be cut on both sides at the same time, the dog vomits and loses his voice; he opens his mouth wide; the membranes of this cavity as-

sume a violet colour: he becomes weak, lies down, creeps or rolls on the earth, as if all his powers were oppressed. Respiration continues: excited, however, by an illusory feeling, he stretches out his nose and neck, as if struggling for air. The colour of his mouth becomes more and more livid: the blood of the arteries is black, and that of the veins as if blackened with a coal: he dies of fatigue and weakness in the course of one, two, or three days at most.

From this it appears that the section of the eighth pair of nerves produces the same effects upon dogs as upon horses: in reality, these effects in dogs are less intense, probably because they have less need of breathing than horses, or that their lungs receive more of the nerves of the great sympathetic.

It follows, from these experiments, that the simultaneous section of the two nerves of the eighth pair constantly produces death in some animals, in the course of some hours; and in others, some days are necessary for this purpose; and that it determines the interruption of sanguification in the lungs.

To verify this last consequence, it remained to be determined, whether there existed other causes of death and the phenomena which accompany it, than the changes of respiration.

It was not probable that the pain and wounds which we were obliged to make in cutting the nerves of the eighth pair contributed to produce those phenomena we have noticed. The wound and pain occasioned by the section of one of the nerves being inconsiderable, it was difficult to conceive, that the section of the two nerves could produce, under this view, very different effects.

In the mean while, to remove all doubts on this head, and to submit to a more decisive proof the result of the preceding experiments, we resolved to employ on the nerves of the eighth pair, a compression strong enough to suspend their action, but too weak to disorganize them. We know that the compression of nerves produces the same effects as when they are cut, with this difference, that they recover the power of action when they are only compressed, whilst when cut it is lost for ever.

It was evident, that if the phenomena which we had observed were confined solely to the interruption of the action of the eighth pair of nerves on the lungs, they ought to present themselves when the nerves are compressed, and we could cause them to disappear in restoring to the nerves the faculty of action.

To make a decisive experiment, we chose a dog of a middling size, and after having laid bare one of the carotid arteries, we satisfied ourselves that the arterial blood was very red and of a vermilion colour: we afterwards placed the nerves of the eighth pair between the branches of a certain instrument *(serré-næud)* adapted to this purpose, and employed upon them a proper compression. We had scarcely commenced when snorting and violent efforts to vomit were manifested: the lips, tongue, and interior of the mouth became of a violet colour: the arterial blood in a short space of time, assumed a very deep black colour; nevertheless the respiration was not quite interrupted. It was only after some minutes that the animal, weakened and panting, ceased to move his chest. It appeared to us even after some moments, that life was completely gone; nevertheless, the compression of the nerves being removed, after signs of apparent death, we soon observed movements of inspiration and expiration, at first weak and irregular, but which afterwards acquired force and regularity. When re-established, the livid and violet colour of the eyes, lips, tongue, and inward part of the mouth, disappeared by degrees; the blood which we suffered to escape from the carotid artery, insensibly lost the black colour which it had at first, and soon resumed its purple hue. We succeeded by similar alternate compressions, renewed and suspended with discernment, to cause the same dog to pass several times from life to apparent death. These experiments, when made with care, are so little dangerous, that many animals on which they were performed, have been perfectly healed; and we kept a dog for some time, on whom we several times repeated them. We cannot better compare the effect of this compression than to that of suffocation produced by a non-respirable gas, but not deleterious, which, during some time, suspends the respiration, but not immediately attacking life, does not prevent the respiration from being re-established and continued.

Before we terminate what relates to the compression of the nerves of the eighth pair, we may observe that its effects are always more rapid and more violent than those occasioned by their section; and that we have had occasion to make the same observation on several other nerves.

Conclusive as these experiments seem, as they had been made on a part of the nerve of the eighth pair, situated on the neck, and as below this point it furnishes large branches to other organs as well as to the lungs, it might still be doubted whether these phenomena were simply the result of an attack

made on the vitality of the lungs, or whether they were owing to the commotion which took place at the same time in all the organs to which this nerve distributes itself below this point.

To remove all doubts, it was necessary to cut separately all the branches which the eighth pair sends to the lungs, and to allow the rest of the nerve and its distribution to remain; or if this was impossible, it was necessary to cut successively all the branches it sends to other organs, and to leave untouched its trunk and branches which go to the lungs.

We made choice of the last as the only one which can be practised, and which is as decisive as the first: for it is evident, that if in cutting successively all the principal branches of the nerve of the eighth pair, the pulmonary ones excepted, we could not re-produce any of the phenomena above described, we could not but refer them to the cessation of the influence of the nerve of the eighth pair on respiration, as their true and only cause.

We then began by cutting, in dogs, the superior laryngean nerves, and this section produced nothing else than a weakness of voice, and a disagreeable hoarseness, which in a certain time vanished. We wished to cut the small branches which go to the heart, for the purpose of seeing to what degree this section influences the movements of this organ, and how the latter affects life: but it is known that it is almost impossible to make this experiment in a complete manner; and we afterwards cut the two superior laryngean nerves of another dog, and the inferior laryngeans, or the recurrent nerves, and the voice was completely destroyed, as has been observed by physiologists from the time of Galen to the present day. Nevertheless, none of the symptoms of *asphyxia* produced by the section of the whole of the nerve of the eighth pair, were manifested, neither at the moment of section, nor during the long time which the animals survived these very dangerous experiments.

It remained for us to make a section of the nerves which rise below the pulmonary plexus, for the purpose of terminating this kind of analysis, and of being able to determine the part which each of the branches of the eighth pair had over the phenomena exhibited by our experiments. This section, extremely difficult, could not be made but by opening the left side of the breast of a living dog, and searching with the fingers for the stomachic cords twisted on the œsophagus, whilst the animal breathed by the right side. When these nerves

were once found, it was easy to cut them with scissars; but at the moment when this was done, extraordinary efforts and violent vomitings were manifested, and it happened more than once that we were not masters of the operation—the lungs could not be confined within the breast, and we saw the animal perish under our hands. Nevertheless, we were fortunate enough to preserve, during several days, the lives of many of them, by applying a suture to the wound of the breast. In this case we observed no symptom of asphyxia, nor change of colour in the arterial blood.

It results from these experiments, that the influence of the different branches of the eighth pair is exactly confined to those parts where those branches are distributed: that the section of the superior laryngean and stomachic chords presents no other phenomena than hoarseness, *aphony*, nausea and vomitings; and that we must attribute the production of symptoms of asphyxia solely to the section of the pulmonary nerves.

This being proved, there remain but a few objections to anticipate, to give to the conclusions of this memoir all the force of which they are susceptible.

The asphyxia, of which we have spoken—could it not be occasioned by the commotion which usually takes place in the act of respiration, after the nerves of the eighth pair have been cut? But this commotion, remarkable as it is, is nevertheless not such that we do not find the like in other circumstances, which are, however, not followed by asphyxia and death. Besides, this commotion of the act of respiration is not inseparable from our experiments; and we have seen more than once sanguification to cease, although the motions had not undergone any sensible change.

It follows, that if we destroy the nerves which preside over the nutrition of organs, and the exercise of their functions, we ought, at the same time, to destroy the nutrition and the functions of these organs. Is, therefore, asphyxia induced by simply suspending the nutrition of the lungs? That is not probable: nutrition by its nature is a very slow function, which we cannot stop in one instant, and the cessation of which does not produce instantaneous effects. Nevertheless, convinced that it is always necessary to prefer experience to reasoning, we cut the nerve of the eighth pair of a dog; and of another dog we cut one nerve of the eighth pair, and a half of the other: we made the same experiments on a horse, and we suffered these animals to live more than a month.

On opening their bodies, we found no trace of atrophy, leanness, or any change whatever on the lungs.

This fact, supported by others, and particularly by the observation of Scarpa, that the pulmonary branches of the eighth pair are exclusively distributed to the bronchia, and to their internal membrane, appears to point out that they have a function which belongs especially to respiration.

There is another objection which appears stronger than others, and which I ought not to pass over in silence. If respiration depends on the nerves of the eighth pair, as our experiments seem to demonstrate, how happens it that death does not take place so soon in this species of asphyxia, as in those which are produced by a want of respirable air? We must first remark, that a nerve which is cut, preserves, in the end which is separated from the brain, the faculty of determining for some time both motions and actions. It may happen that afterwards, the threads of the great sympathetic sent to the lungs by means of the pulmonary plexus, may, for some time, keep up the respiration after the destruction of the eighth pair of nerves. A circumstance which we have more than once remarked in our experiments gives great weight to this last presumption:—it is, that horses of which we cut the great sympathetics at the same time with the eighth pair of nerves, have always expired more suddenly than those in which the last only has been cut. It is then probable that the threads which the great sympathetic sends to the lungs, there keep up an action capable of retarding, for some time, the change of the red colour of the blood into that of black. Besides, the observations made on men, whose hearts are badly organized, and which permit the black to mingle and circulate with the red blood, evince that an animal may live a long while with a mixture of these two liquids in very variable proportions. They teach us besides, that this description of sick people remain constantly in a state of muscular weakness, and an oppression of strength, analogous to that which we have observed in animals.

Although these explanations may not sufficiently illustrate some particular circumstances in our experiments, the conclusions which follow are not less decisive.

1. The simultaneous section of the two nerves of the eighth pair is always mortal.

2. This section induces an asphyxia which continues a longer or shorter time, depending on the species of animal submitted to the experiment.

3. This asphyxia is characterized by symptoms of affections which manifest themselves after the cutting of the nerves, and particularly by a black and coaly colour, which the blood of the arteries and veins assumes.

4. Whilst this asphyxia lasts, the air does not cease for a moment to penetrate the lungs, nor the blood to circulate through them; which establishes, in an invincible manner, that this disease is not induced by a suspension of the motions of the breast, nor by that of the motions of the heart, but by a suspension of the action of the lungs.

5. By means of a simple compression of the eighth pair of nerves, exercised, suspended, or continued during a short space of time, we can produce this asphyxia, cause it to cease, or render it mortal; whence it results, that in all cases in which it happens, in consequence of the section or compression of those nerves, it can have no other cause than their destruction.

6. Seeing the cutting of the eighth pair of nerves interrupts respiration, this function, in a state of health, takes place under the influence of the nerves which distribute themselves to the lungs; under that of the brain, whence they proceed; and, consequently, under the influence of life, of which the influence of the nerves and brain is no more than a condition.

It is then the same with respiration as with all the other functions; a first cause essentially attached to life, presides over its existence: it determines and regulates the action of chemical affinities. It is from this first cause we must set out in our examination of respiration, as in that of all the other functions, in order to understand the physical, mechanical, and chemical phenomena, and to form an accurate judgment of their changes.

REVIEW.

ART. I. *The Planter's and Mariner's Medical Companion: Treating, according to the most successful Practice,* 1. *The Diseases common to warm Climates and on Ship-board.* 2. *Common Cases in Surgery, as Fractures, Dislocations, &c. &c.* 3. *The Complaints peculiar to Women and Children, &c. &c. By* James Ewell, *Physician in Savannah.* 8vo. pp. 328. *Philadelphia.* Bioren. 1807.

MANUALS of health, or popular publications on medicine, have become so frequent as to have excited the censure of some grave and oracular members of the profession. They consider their publishing brethren as unnecessarily divulging the arcana of the art, as depreciating its credit and estimation, and as teaching the common mass of readers to know as much as themselves. This communicative disposition they conceive to be carried to a very faulty extreme. For when the secrets of the healing faculty are promulgated by its members, with such consummate knowledge and success, what is left for distinguishing the regularly initiated from those who are without the pale? The propagation of the Esculapian mysteries is viewed to be faulty on another account; inasmuch as in diminishing the importance, it lessens the profits of the practisers, and thus, for the gratification and emolument of one tell-tale author, the whole fraternity is disparaged.

Let us, however, do justice to those sons of physic who are thus accused of faithlessness, in uttering abroad those matters which ought to be viewed as under the restriction of closed doors. Contrast their conduct with that of another class of medical personages, who for ever deal in nostrums, and are incessantly boasting of their wonder-working powers; who assure the credulous world they can cure every possible disease of mind and body; but with a cunning equal to their effrontery, permit no mortal to become acquainted with their remedies. Compare the conduct of him who withholds nothing from his fellow citizens, with that of him who keeps every thing to himself. There can scarcely be a stronger exhibition of generous communication on the one part, and of selfish concealment on the other. Whatever

may be pleaded in behalf of the persons who refuse to make a magnanimous publication for the good of mankind, of such valuable means of cure as they may possess, or who secure the profits of them under the statute of patents, there certainly is a character of greater disinterestedness and philanthropy, and a temper of a brighter mould and finish in him, who, without fee or price, offers to his fellow creatures all he knows that will be beneficial to them.

We know it has been said, that a smattering in the knowledge of the animal economy, and of diseases, multiplies the number of patients, and encourages the practice of physic. Books on such subjects, addressed to the people at large, are peculiarly calculated to alarm their fears whenever they are unwell, and, therefore, impel them to seek assistance from those on whose skill they rely. It has been surmised too, that the disciples of Buchan, Willich, and their coadjutors, have often been led, from a superficial and conceited knowledge, to become prescribers to others, and have, by their blunders, rendered the attendance of the regular physician more needful than ever. Hence it has been argued, that publications of this kind fail to promote the plausible object of their composition, and, in reality, produce a mischievous, and not a beneficial effect. It has even been urged against them, that they are of no service to any person but the writer, who may diffuse his fame and increase his wealth in proportion to the circulation of his book, and the consequent disturbance it works in society.

Whatever may be the merits of this controversy among those who are toiling night and day in the service of the infirm and disabled, or in the compilation of volumes, for our own parts, as reviewers, we feel favourable to the general distribution of knowledge. We are not attached to monopolies of any kind, and less than any, to that which confines to a particular order, the information which will teach man how to prevent sickness and pain, and to remove these ills when they invade. He who publishes wholesome precepts and directions cannot be denied the merit of good intention; and it would be hard to refuse him the additional credit of having done substantial good to those who have followed his advice. Having indulged these prefatory reflections, we advance to the consideration of the work before us.

The author has prefixed to it a dedication to the President of the United States, a preface explanatory of his design, and a number of recommendatory epistles from his friends. Then

follows a chapter of preliminary observations, of which we were inclined to offer an extract, page 2 to 8, for the gratification of our readers; but our limits forbade.

The body of the work is devoted to the consideration of the principal diseases which assail the human frame at different times of life. They begin with fevers, and end with rickets; without, however, observing any strict method or nosological arrangement. Each section stands by itself, and has little or no connection with the preceding or subsequent matter. But a table of contents and index are two good keys to the subjects discussed.

The diseases are severally considered in short and generally appropriate terms. After a definition, the observations are mostly comprised under the heads of *symptoms*, *causes*, *treatment*, and *regimen*; to which, in some instances, are added paragraphs on *prevention*. And it is but justice to observe, that the author has manifested a careful and discriminating mind in condensing so much valuable instruction into such a moderate compass. The sententious and, at the same time, intelligible manner of conveying his directions, is at once calculated to give the reader a clear idea of his meaning, and a favourable opinion of his understanding.

Besides the observations that are strictly medical, the work contains a variety of directions upon surgical subjects. We cannot, perhaps, do better than lay before our readers the parts of this book that treat of dislocations and fractures. (p. 212.)

"*Dislocations.*

"What is termed a dislocation, is the removal of an articulated bone from its natural situation, which is easily known by a degree of protuberance on one side, equalled by a corresponding hollow on the other; by comparing the joint of one member injured with its fellow; by inability to move the injured limb, and by pain and tension in the part affected. In whatever part a dislocation happens, it is of great importance to have it reduced as soon as possible; because, by delay, the operation becomes extremely difficult, and very frequently is rendered impracticable, after the inflammation and swelling have come on.

"Therefore, whenever this accident happens in the country, if medical assistance cannot immediately be obtained, the most intelligent person present should reduce the bone.

"In the replacing of dislocated limbs, the principal object to be attended to, is the mode in which the extension is made;

for the success of the operation depends more on this, than the force with which it may be applied. Therefore, gradually extending from one side to the other, and gently moving it upwards and downwards, is more likely to succeed, than strong extension in a right line: the force should be begun very gradually, and increased slowly at each trial, in case it resists the first. In case of a luxation being obstinate to reduce, bleeding so as to cause faintness, may often be used advantageously; and while the patient is in a weak state, there is a greater probability of success from extension well directed; the operator, at the same time, endeavouring with his hands to replace the dislocated end of the bone.

"After the bone is replaced, compresses made by two or three folds of old linen, wetted with vinegar or lead water, should be constantly applied to the part, in order to obviate inflammation; and the limb should be retained in its natural situation by bandages, which should neither be applied over tight, nor over loose; as in one case they would compress too much; and in the other they would be of no use to the parts.

"Where inflammation has taken place, before the reduction is accomplished, it cannot be performed until that is overcome. For this purpose we must adopt the antiphlogistic plan, such as bleeding, keeping the bowels in a laxative state by the occasional use of the cathartic mixture, and using warm drinks, together with the camphorated powders and antimonial solution in their usual doses, in order to promote perspiration.

"*Dislocation of the Jaw.*

"The lower jaw may be luxated by yawning, blows, falls, chewing hard substances, or the like. This accident may be known to have taken place, from the patient's being unable to shut his mouth, or to eat any thing. The chin, likewise, either hangs down, or is wrested to one side; and the patient is neither able to speak distinctly, nor to swallow without considerable difficulty.

"The common method of reducing a dislocated jaw is to place the patient upon a low stool, in such a manner that an assistant may hold the head firm by pressing it against his breast. The operator is then to push his two thumbs, protected with linen cloths that they may not be bitten when the jaw slips into its place, as far back into the patient's mouth as he can, and then, with his fingers applied to the outside of the angle of the jaw, endeavour to bring it forward till it move

a little from its situation. He should then press it forcibly downwards and backwards, by which means the lapsed heads of the jaw will immediately slip into their place.

"*Dislocation of the Shoulder.*

"The humerus, or upper bone of the arm, is the most subject to dislocation of any in the body, and may be luxated in various directions: the accident, however, happens most frequently downwards, but very seldom directly upwards. This dislocation may be discovered by the patient's inability to raise his arm, as well as by violent pain in attempting it, and by a depression or cavity on the top of the shoulder. When the dislocation is downward or forward, the arm is lengthened, and a ball or lump is perceived under the arm-pit; but when it is backward, there appears a protuberance behind the shoulder, and the arm is thrown forward toward the breast.

"The usual method of reducing a dislocation of the shoulder is to seat the patient upon a low stool, and to cause an assistant to hold his body firm, while another lays hold of the arm a little above the elbow, and gradually extends it. The operator then puts a napkin under the patient's arm, and causes it to be tied behind his own neck. By this, while a sufficient extension is made, he lifts up the head of the bone, and with his hands directs it into its proper place. In young and delicate persons, an operator may generally reduce this dislocation by extending the arm with one hand, and thrusting in the head of the bone with the other. In making the extension, the elbow ought always to be a little bent.

"*Dislocation of the Elbow.*

"The bones of the fore-arm may be dislocated in any direction, but most commonly upwards and backwards. In this luxation, a protuberance may be observed on that side of the arm towards which the bone is pushed; from which circumstance, joined to the patient's inability to bend his arm, a luxation at the elbow may be known.

"For reducing a dislocation at the elbow, two assistants are for the most part necessary: one of them must lay hold of the arm above, and the other below the joint, and make a pretty strong extension, while the operator returns the bones into their proper place. The arm must afterwards be bent, and suspended for some time with a sling about the neck.

"Dislocations of the wrists and fingers are to be reduced in the same manner as those of the elbow, viz. by making an

extension in different directions, and thrusting the head of the bone into its place.

"*Dislocation of the Thigh.*

"When the thigh-bone is dislocated forward and downward, the knee and foot are turned out, and the leg is longer than the other; but when it is displaced backward, it is usually pushed upward at the same time, by which means the limb is shortened, and the foot is turned inward.

"When the thigh-bone is displaced forward and downward, the patient, in order to its reduction, must be laid upon his back, and made fast by bandages, or held by assistants, while by others an extension is made, by means of slings fixed about the bottom of the thigh, a little above the knee. While the extension is made, the operator must push the head of the bone outward till it gets into the socket. If the dislocation be outward, the patient must be laid upon his face, and, during the extension, the head of the bone must be pushed inward.

"Dislocations of the knees, ankles, and toes, are reduced much in the same manner as those of the upper extremities, viz. by making an extension in opposite directions, while the operator replaces the bones. In many cases, however, the extension alone is sufficient, and the bone will slip into its place merely by pulling the limb with sufficient force. It is not hereby meant that force alone is sufficient for the reduction of dislocations. Skill and dexterity will often succeed better than force; and one man who possesses them has been able to perform what the united force of many was found inadequate to accomplish.

"*Injuries of the Head, and Fractures of the Limbs.*

"If, in consequence of a bad fall or blow, a considerable injury appears to have been received, the sufferer being unable, in consequence of the loss of his senses, to point out the injured part; some consideration is necessary before any attempts are made, even to raise him from the ground. Because, should a fracture of one of the bones have happened, and not suspected by his assistants, their exertions to raise him, and to place him on his feet, might force the ends of the fractured bone through the soft parts, and convert a simple fracture into a very dangerous compound one. The limbs, therefore, should be carefully examined; but even if they seem to have sustained no material injury, yet should the patient not be precipitately raised, until something be provided, on which he may be

placed: as thereby unnecessary, and perhaps injurious exertions are avoided.

"As it will be fair to conclude, from the deprivation of the senses, that the brain may have sustained some injury, great care should be taken to convey the patient to his apartment with as little injury as possible, and whilst lying in bed the head should be somewhat raised. If the patient be of a plethoric habit, a moderate bleeding will be required, as soon as possible after the accident; after which the bowels should be evacuated, either by purgative medicines or glysters. One or two stools being procured, and, if possible, the warm bath used; the anodyne sudorific drops,* should next be exhibited, to produce perspiration, and to excite absorption of the extravasated blood; and this mixture should be continued in doses of ten or twelve drops every four or six hours, until the patient is out of danger, observing to keep the bowels open.

"During convalescence, the bark, columbo, or steel, with wine may be employed. If there is a laceration of the scalp, every attempt should be made to induce suppuration of the part, by the application of warm fomentations or poultices, and this taking place, a relief of all the symptoms will occur, when it is to be treated as a simple wound.

"But should it be discovered that a leg or thigh is broken, the patient is not to be stirred until a proper vehicle, as a door, or two or three boards well secured together, is procured, on which he can be placed. To place him on this, two persons may raise him by means of a sheet slid under his hips, whilst one raises him by the shoulders, one person raising the sound leg, and one carefully conducting the fractured limb, which should be placed on a pillow, with the knee a little bent. The best mode of conveyance is undoubtedly by two or four men, and a carriage should never be employed, when this mode can be adopted. As the patient will be under the necessity of lying some time without getting up, much subsequent pain and exertion will be prevented, by preparing the bed in the following manner.

"In place of the laced canvass, bottom boards are to be laid across the bed frame, which makes the bed hard, and keeps it perfectly level and smooth during the cure. In place of a feather bed, a mattress only is to be laid above those boards; over this another, cut in four parts, with a piece of a sheet sewed round each portion, is to be placed, that these

* Vid. Dispensatory.

may be shifted under the patient from time to time. On the bed thus prepared, a pillow, like a mattress, flat and firm, is to be laid for receiving the limb.

"In setting a broken bone very little extension is required, nor should tight and firm bandages be used, which gives considerable pain to the patient, without the least benefit. In a simple fracture of the thigh or leg, with patients not unruly, very little more is necessary than to restore the foot to a right direction with regard to the leg, and then stretch out the limb on a well made pillow; observing to extend, straighten, and lay it anew, when it is disordered or shortened, without fear of hurting the callus. And when you have placed the limb between two splints, or troughs, made of untanned leather or pasteboard, which have been previously soaked and softened, the whole braced down with ribbons or tapes, which may preserve it steady, you have done every thing.

"Having prepared two long troughs, or pieces of untanned leather or pasteboard bent in a hollow form, lined, or rather cushioned with two or three folds of flannel, with tapes or ribbons, four or five in number, attached to the outside of one of the splints, by which both splints may, after all is over, be gently tied together, with bow knots, to be slackened or tightened according to the swelling of the limb; you are then to place these by the side of the fractured leg, and direct one of the assistants to apply his hands broad around the upper part of the limb, and grasp it gently and steadily; take the foot and ankle in the same manner in your own hand; slip your left hand under the broken part of the limb, slide it gently along, and then lay it upon the splints, to which the ribbons are attached.

"If the bone cannot be reduced by this extension, endeavour to force it in by your thumbs. Begin then to lay the limb smooth; let your assistant again grasp it, by spreading his hands upon the thigh, or below the knee, with the design of extending along with you, not by lifting the leg from the pillow, but rather by keeping it down, and steadying it by pressure, while you, with both hands, lift the foot and ankle; grasp them gently, but firmly; raise them a little from the pillow, and draw gently, steadily, and smoothly. When you have thus extended and smoothed the broken leg, in a manner which you almost suppose agreeable, rather than painful, to the patient, press it down gently and steadily upon the lower splint; the upper is then to be laid above it; and by grasping the soft and moistened splints, you must model them a little

to the shape of the limbs. When the whole has taken a form tie several tapes, one after another; and after having tied them in a general way, go over them again, one by one, and tie them a little closer, so as to keep the limb agreeably firm.

The process is either slower or more imperfect in children and old people: their bones, therefore, are more apt to be broken again; hence with them the splints should be kept longer applied. On particular occasions also, particular precaution must be taken. Thus, with delirious patients, and those who are liable to sudden motion, as when at sea, the limb, after being set, must be laid between two pillows, and the pillows fastened to the bed. It is also sometimes necessary to make the splints more secure, and this may be done by soaking a roller or bandage in whites of eggs, mixed with a little flour; or by strewing a little powdered resin on the bandage, and afterwards soaking it with spirits of wine; or, finally, by soaking the bandage with fine glue, which makes a firm case, and is far from being offensive.

"Lastly, though splints and bandages in general are unnecessary during the cure; yet, when a patient rises from bed, rests the weight of his body on the fractured bone, and begins to be exposed to accidents, the splints laid along the limb should be made firm by a bandage or roller as above described, to prevent those accidents which may be incurred by precipitation and rashness.

"In fractures of the arm, the part hangs naturally in the best posture, and requires but two splints, of thin paste-board, rolled gently with a linen roller: and in fractures of the fore-arm, the limb preserves its natural length or form; it requires merely to be laid upon a long splint of pasteboard, with a small splint laid above, the two splints being secured with slight ribbons or tapes, and the arm from the elbow to the fingers' ends supported by a sling or handkerchief round the neck, raising the palm of the hand to the breast, with the fingers moderately bent.

"When the arm is fractured between the elbow and shoulder, the fore-arm may be placed in the same position, as already described; but the sling, instead of supporting the whole length of the arm, should only support the hand, which should be raised higher than in the former case, the elbow being allowed to sink; its motion, however, being prevented, by a handkerchief passed moderately tight round the trunk, including the fractured arm.

"When the small bones happen to be fractured, they must

be replaced and retained in their situation, by splints and bandages fitted to the part. In using splints of pasteboard or untanned leather, it is always necessary they should be applied in the first instance wet, so as to assume the form of the fractured part. After the first fortnight, the dressings should be occasionally removed to allow some motion of the joints; and then replaced, and daily removed for the same purpose.

"Almost all fractures are attended with contusion and consequently swelling; the abating of which is the first step that should be taken towards the cure, and is to be effected by bleeding, if the patient is of a plethoric habit, by mild purges, a cool regimen, and by the exhibition of the anodyne sudorific drops, as already described: the application to the parts affected should be vinegar or lead water, with crumbs of bread, or poultices made of stale beer or vinegar and oatmeal, with a little oil to prevent their growing dry or stiff.

"The swelling of the limb being subsided, and the callus formed, cold water may be poured through the spout of a teakettle over the fractured limb, every morning, to restore the tone of the injured parts."

To render his compilation more generally useful and acceptable, the author has annexed to it a dispensatory. This consists of two parts: the first comprehends a table of medicines for family use, with their doses and qualities annexed; and the second contains a collection of receipts for the principal part of the compound medicines recommended in the course of the work. And this part of the publication is executed in a manner that justifies the opinion we hinted before, of Dr. Ewell's sagacity and skill.

ART. 2. *The Pharmacopœia of the Massachusetts Medical Society.* 12mo. pp. 272. *Boston.* E. & J. Larkin. 1808.

AN American Pharmacopœia has been long considered as a desideratum in our medical literature. The great extent of country, comprehended within the limits of the United States, includes much variety of climate and soil, and is, in general, extremely rich in active medicinal vegetables. Many of our countrymen, at different times and in different places, have appeared to be duly sensible of the abundance and efficacy of the American Materia Medica, and have accordingly endeavoured to direct the attention of physicians towards the harvest

of discovery and improvement which might undoubtedly be reaped by an investigation of the properties and uses of our indigenous productions. To concentrate in a single point of view whatever has been ascertained on this subject by the experience and observations of the most respectable medical inquirers, in various parts of the American Union, presents a task of great interest and utility, but, at the same time, full of difficulties, and liable to sources of fallacy which nothing could effectually guard against but the utmost exertion of caution, patience and labour.

In the course of the last century, and particularly during the latter half of it, systems of Materia Medica, and consequently models of Pharmacopœias, have been constantly undergoing revision and reform. The successive amendments kept pace so exactly with the state of all the sciences related to Medicine, that they form an index of their condition and progress from one period to another. These efforts of reform consisted chiefly in a more careful selection of the articles claiming admission, in rendering pharmacy more conformable to the doctrines of chemistry, and in establishing nomenclature on the basis of scientific principles and arrangement. It is unnecessary now to recal the reader's attention to the mischief resulting from the multitude of inert, superfluous or doubtful articles, not to speak of the fanciful and superstitious, which continued during the lapse of ages to encumber the catalogues of the Materia Medica. The banishment of a large proportion of these articles, and fixing the reliance of physicians on a few well-chosen remedies, have rendered modern practice much more regular, vigorous and decisive. The application of more correct chemical principles has expunged or essentially modified a mass of heterogeneous and overloaded compositions, which had been formed without regard to the physical relations which the ingredients bear to one another. And the alterations of nomenclature have now generally led to the adoption of a language founded upon systematic principles, such as can be exactly understood in all parts of the civilized world, and such as tends by its precision in the most effectual manner to secure uniformity, and to prevent mistake.

The learned physicians of Massachusetts, who undertook the execution of this work, have neither neglected the native productions of this country, nor hazarded the introduction of many of them into their catalogue of Materia Medica. We may presume that, after making due inquiry, they found it impracticable to obtain satisfactory information concerning the

virtues and uses of many which had gained popular, and even professional attention. Of the two evils, they have perhaps wisely considered it as the smaller, that some active remedies should be omitted, than by a free insertion of indigenous articles not yet sufficiently tested by experience, to run the risque of leading the public confidence astray.

This work consists, 1. Of Materia Medica, or a catalogue of simple and some prepared medicines, such as are kept in the shop of the apothecary, but not prepared by him. 2. Of preparations and compositions. 3. Of various tables, viz. a. Table showing the proportion of antimony, opium and quicksilver contained in certain compound medicines—b. A posological and prosodial table. c. A table of ancient names with their synonimes in the nomenclature of this work. d. A table of systematic names used in this work with their synonimes in the ancient nomenclature. The work is concluded with Latin and English indexes, which render reference easy to any article of the contents.

In the compilation of this Pharmacopœia, the authors have resorted to the best sources and examples, and have judiciously availed themselves of whatever was applicable to their plan. The work bears the marks of great care and accuracy, is executed with singular neatness, and, in our opinion, does much honour to the respectable society from which it proceeds.

For the purpose of giving a more satisfactory idea of this work, we extract the greater part of the preface as follows.

"The MASSACHUSETTS MEDICAL SOCIETY present to the public their Pharmacopœia, in conformity with a sense of duty, and the practice of similar bodies of men in Europe. As this is the first work of the kind which has been published in the United States, they consider it proper to explain the necessity and intention of the work, and to add some particulars respecting its plan and mode of execution.

"It is the intention of a Pharmacopœia to point out those articles whose properties entitle them to be employed for the cure of diseases, with the best modes of preparing them; and to supply the preparations and compositions of them with titles or names, by which they may be known or referred to, without constantly repeating a description of their ingredients.

"Such a work is mutually convenient to the physician and apothecary. As it is the business of the physician to prescribe, and of the apothecary to prepare medicines, the physicians, as a body, ought to point out those articles of medicines which

they shall ordinarily employ, and the standard preparations of them.

"The necessity of a work of this nature has been long noticed, especially in our large towns. In them the professions of physician and apothecary are most distinct; and between those, whose relation to each other is so important, a perfect understanding should exist. As this cannot be established between them as individuals, it is necessary that there should be uniformity, both in the pharmaceutical preparations and language. By the want of such uniformity, much inconvenience, and even very serious consequences have been produced.

"The work now offered, will, it is presumed, effectually remedy such evils. The Medical Society, indeed, is not empowered to require of apothecaries a compliance with the directions of this Pharmacopœia; nor does such power seem requisite. It has a sufficient substitute in the apothecary's regard to his own interest, and to his duty to the public.

"Books multiply so fast, that it has become necessary to preface every new work with the reasons, almost indeed with an apology for its appearance. The preceding remarks furnish, in some measure, an apology for this work. Yet it may be thought, that a new book was not necessary for the purposes which have been stated, since foreign works of this nature are in the hands of every physician and apothecary.

"This consideration merits attention, and the Society have endeavoured to give it due weight. Respecting the medical erudition of those learned colleges, by whom pharmaceutical works have been issued in Europe, the Society very naturally looked to them for a work which should supply their own wants. They even conceived, that a Pharmacopœia of equal merit, originating from themselves, would be less convenient to them, than one, which should be generally received, and of which the language should be commonly adopted in those nations with whom we maintain the greatest literary intercourse. It was then a question, what work best answered this description; and they might have hesitated in their choice among the British Pharmacopœias, had not the Edinburgh college of physicians recently re-published theirs upon a plan truly scientific. Yet this, like other European Pharmacopœias, being in the Latin language, is not adapted to this country, where the apothecaries are not necessarily instructed in that language; and in some other respects, is not perfectly suited to the modes of practice received among us.

"The Society then resolved to adopt the Pharmacopœia of

the Edinburgh college as the basis of their own; but to permit such omissions, alterations, and additions as, upon minute examination, should be found necessary. It was not desirable, however, to give to this an appearance of originality; on the contrary, trifling considerations have not induced any variation from that excellent work.

"As Latin names for the articles of the Materia Medica, and for the preparations and compositions, are most commonly employed, these are given, with their English translations; while the directions are in the English language only. The convenience of this arrangement compensates for the partial neglect of system.

"Our omissions, alterations, and additions, have not been made without laborious investigations, and such experiments as seemed most important. The following were the general heads of our inquiries.

"1. Respecting the virtues of each article on the list of the Materia Medica, in the Edinburgh Pharmacopœia.

"2. Respecting articles, admitted into other Pharmacopœias, or employed in this country, which are not found in the Edinburgh Pharmacopœia.

"3. Respecting the merit of the preparations and compositions in the Edinburgh Pharmacopœia, compared with those, which are similar in other pharmaceutical works.

"4. Respecting the merit of such preparations and compositions as are not admitted into the Edinburgh Pharmacopœia, but are found, either in similar works, or in use in our own country.

"In pursuing these inquiries, the individuals to whom the task was allotted, have not been governed by their own sentiments alone; but have constantly had respect to the general opinion of their professional brethren, so far as they could ascertain this by common practice. On the one side, it was obviously desirable, that the book should not be swelled to a great size; and, on the other, that it should contain every article of the Materia Medica in use, with sufficient variety of preparations and compositions. Among the substances employed in this country, which are not found in European Pharmacopœias, they have admitted but a small part of those which have come to their knowledge. It is much to be regretted, that the history of most of them is very imperfect; since such articles only as have pretensions to an established reputation, can be entitled to admission into a work of this

sort. In this instance, a natural partiality has called for an extension of this rule to its utmost length.

"On the important subject of pharmaceutical nomenclature, there is much difficulty in determining the best course to be pursued; much more, in pursuing such a course as to give satisfaction to all. We have followed the Edinburgh college in admitting systematic names for both the natural and artificial substances employed in medicine.

"It must not be understood, that in adopting the modern language of botany and chemistry, we have consulted the whims and opinions of every pretender. In this, as in former ages, men are creating confusion by creating names. The object of the reforms in scientific language is to obviate this evil, and to establish nomenclature upon solid grounds. The language we have employed is that which has been sanctioned and adopted by the most profoundly scientific men of the age. If chemists have not attained unquestionable knowledge respecting every object of their research, yet this is least of all the case with respect to most of the articles employed in medicine. Shall we refuse to avail ourselves of their successful labours, because they have not arrived at perfection in every branch of their science?

"That there are great advantages in the systematic nomenclatures of the botanists and chemists, so far as they are founded on fixed principles, will not be disputed. These advantages are such, as must eventually secure their reception.

"There are some cases, in which a regard to convenience has led us to leave the names of well known substances unaltered. Many of those names, which have been established for ages, and much employed, are suffered to remain in use; while the scientific names corresponding with them are pointed out in their proper places. The same plan has been followed in those instances where the scientific names would be too long, or do not point out the variety of the article to be employed with sufficient precision. Thus, it is permitted to call by the name of *opium*, the inspissated juice of the capsules of white poppy; and by the name of *chalk*, the soft carbonate of lime.

"The importance of the objects for which this work is designed, will not be disputed. In the present age, and especially in this country, the articles most employed in medicine are not denied to possess power, whatever doubts may be entertained of their usefulness. Of such articles our knowledge cannot be too perfect, nor can our preparations and composi-

tions be made with too much accuracy. So many are the sources of fallacy in these respects, that all directions are futile, unless a compliance with them is accompanied by great personal accuracy and circumspection in the apothecary. This work is offered as a manual; but it should be handled by those who are well versed in chemistry, well acquainted with the characters of medicinal substances, and familiarly accustomed to pharmaceutical operations."

We cannot take leave of this useful work, without applauding the diligent and enlightened exertions of the compilers, and recommending it to the attention of professional men in all parts of the United States.

ART. 3. *Oration delivered before the Medical Society of South-Carolina, at their anniversary Meeting, Dec. 24, 1807, and published at their Request. By* Joseph Johnson, *M. D. and President of the Medical Society of South-Carolina.* 8vo. pp. 24. *Charleston.* Marchant, Willington & Co. 1808. *With Tables.*

OF this discourse we are gratified to say that it consists chiefly of facts. The speculations about the influence ascribed by some persons to comets and the moon, do not lead the orator into any wide or devious course. He soon returns to his prescribed path.

Instead of giving a full abstract of its contents, or a regular review of it, we shall introduce the author, and let him speak for himself.

"The present year set in with the most uniform cold weather that has been known since the commencement of our journal, in the year 1793. Occasional showers alone prevented the occurrence of ice, on every night in January, except the last. The thermometer, though not so low at any time as in February, stood at a much lower average, having, until the last day of the month, ranged at thirty-three degrees, and, including the heat of the last day, averaged at thirty-six degrees. On the 18th there was a fall of snow. The winds prevailed twenty-two days from the northern, and nine from the eastern points of the compass. Throughout the continent the severity of the cold was in proportion; in Boston the thermometer (probably in an exposed situation) fell to 0, and in Portsmouth to eight degrees below 0.

"Although the coldest day in this, or any other year since 1796, occurred in February, the average of the thermometer was twelve and three quarter degrees higher than in the preceding month; and on the seventh, sheltered from the weather, it stood at twenty-four degrees, and when exposed, fell to sixteen degrees.

"The changes in February and March were very great and sudden; on the sixth the thermometer fell thirty-two degrees in seventeen hours, as appears by our diary, and had, probably, been lower, but again risen at eight o'clock in the morning, the usual hour of observation. On the tenth it had increased twenty-seven degrees in thirty-one hours; and many other changes, of fifteen to twenty-four degrees, are observed in short periods during these months. Snow fell two hours and an half, on the third of February, and on the thirteenth there was smart thunder. The thermometer fluctuated from twenty-four to sixty-nine degrees. Seven inches and three tenths of rain fell in this month, and six inches and six and an half tenths in March. The country was overflowed, and the roads, for a time, were impassable to carriages.

"The spring was unusually cold and backward; as late as the 3d of May there was a frost; so that the remark of Goldsmith, respecting the climate of the Alps, was applicable to ours, in this extraordinary season;—it was

'Winter lingering in the lap of May.'

The plantations and gardens were much injured by this weather, and in a way as extraordinary as the cause. The young crops having been repeatedly destroyed by frost, they were replaced with great industry, and when the planter thought the danger past, his prospects were blasted by myriads of catterpillars, which, like the locusts of Egypt, destroyed alike the whole vegetable world.—The *chenille* had been repeatedly observed in cool seasons; but now a species, which, to the astonished planter, appeared a new creation, not only destroyed the cotton, corn, and rice, but swept even the grass from the meadows, that scarcely a vestige remained.

"The spring having been so backward, the accession of summer was as rapid in proportion, and the 11th of June was one of the hottest days to which our climate is subject; the thermometer standing at ninety-two degress, in a very cool situation, and at ninety-four, generally, through the city. The average heat of July was eighty-six degrees; a range considerably higher than had been observed since 1796; and some-

what exceeding the great heat of that year. From the 26th of July to the 18th of August there had been but one shower; the heat being steady and considerable, the *endemial causus* commenced about the latter date, and was aggravated by the extremely hot weather, from the first to the fifth of September, when the thermometer, at noon, in the coolest situation, varied from ninety degrees to nine-two and an half. September was, from sickness and death, the blackest month ever recorded in Charleston, there having been three hundred and twenty-eight interments; of which one hundred and fourteen were from *endemial causus;* and at least one fourth of the inhabitants were affected with the *influenza* about the last of the month. From the 2d of October to the 5th of November there had been no rain, and on the twenty-one days preceding, there had only fallen one tenth and an half. During the first six weeks of this time the weather was clear, and generally calm; but when the winds did increase, the inhabitants were distressed still more by the clouds of dust which drifted in every direction: the winds, fortunately, prevailed from the east, so that the heat was not oppressive. All the ponds, and many of the wells and springs were dry, so that in country places many cattle died for want of water, and travellers could not obtain a sufficiency, near the roads, either for themselves or their horses. The atmosphere was hazy and thick, as if filled with a subil dust, and the sun, as if deprived of its rays, appeared of a fiery redness. On the 20th of October the weather became cool, and a frost took place within two miles of the city, which being occasionally succeeded by others, the atmosphere was cleared, and the effects of the drought not so oppressive in the city. It may, however, be said to continue even at this time, for, from the 11th of September to the 21st instant, a term of three months and ten days, there had only fallen one inch and four tenths of rain; the usual quantity of a smart shower."

"Influenza is noticed as occurring in March and April, although not sanctioned by our journals. My opinion was then supported by the concurrence of several eminent physicians, and has since been confirmed by a correspondence of symptoms with that which prevailed in the fall. On the first of its appearance, in the latter period, the symptoms were so mild that few required the attendance of a physician. This lulled many into a fatal security; and when about half the inhabitants had been attacked by it, a cold change took place in the weather, during which many relapsed, and several lost their

lives. So general was the prevalence of this disease about the middle of October, that many families had from fifteen to twenty sick at one time: servants could not be hired to do the duties of a family, nor nurses procured to attend the sick. Relapses were very frequent: in all such cases the symptoms were greatly aggravated, and frequently accompanied by violent determinations to the *pleura* and *mediastinum*. However severe the *influenza* was in Charleston, it was much more destructive in the interior country, and along the northern boundary of the state. In Georgetown eight persons were lying dead of it in one day; and in Allanstown, in North-Carolina, out of nine masters of families, seven are said to have died of this complaint, whose families were sick at the same time; and in a small neighbourhood at Cashaway ferry nine families of children are likewise said to have been left orphans by this prevailing malady. With persons advanced in years it was most violent; next to these, with persons having irritable lungs; next with persons left debilitated by previous inflammatory complaints; and, lastly, with pregnant women; in these miscarraige was a frequent consequence. Bleeding, and other evacuants, with emolient drinks, were the only remedies necessary at the first, but frequent blisters were afterwards requisite. In the country places above mentioned, bleeding is said to have been injurious, and probably was so; the difficulties attending country practice render it impossible for so active a remedy to be always seasonably applied.

"On the subject of *yellow fever*, I regret having nothing new to offer towards the cure of the disease. The symptoms varied from those of former years in a greater disposition to *typhus*, so that bark and other tonics, formerly rejected in every stage, were now kindly received, and frequently beneficial; mercury is still the favourite remedy. This dreadful disease having raged in different parts of the United States, ever since the year 1792, still baffles the greatest medical skill. The greatest human strength is prostrated before the pestilential breath of this, as of the Lernæan hydra; no respect is paid to the pride of manhood, or to the loveliness of the weaker sex; vigour, youth and beauty are the chosen victims of its rage. A sympathetic grief pervades the breast of each inhabitant; scarcely a father, or a brother, or a son, whose heart does not throb with apprehension for,—who has not too frequently to lament the loss of some infant hope, or beloved relative, lately returned from the acquirement of an education, or the completion of urgent business; returned to fan the

warmth of his affection, and brighten his hopes, too soon to be blasted by this fell disease.

" If all human strength, supported by medical skill, cannot avail against the furious attack of this monster, may not enterprize, conducted by observation and reason, prevent its origin. Observation points to the drains and other receptacles of filth, and reservoirs of stagnant water, as the sources of its being. Reason convinces us, that if these receptacles of filth were daily cleansed of their putrifying contents, so as to prevent exhalation, this hydra could not exist. Enterprize, confirmed by experience, assures us that water may be conducted through our streets, so as not only to remove the fermenting matter from the drains, but answer many other valuable purposes. Let, then, the talents and influence of this society be exerted to promote so desirable an object; let a committee of your members be appointed to prove that this dreadful disease originates from these sources, and state the most striking instances of similar results from similar causes; let them prove, that this disease may probably be prevented by frequently cleansing the drains of their impure contents; and recommend the distribution of water through the city by conduits, with a view to this great object. This foe to the prosperity and happiness of Charleston may thus be vanquished without Herculean aid. Rescued from this fiend, trade and commerce will again flourish in the summer season, and their increase be, at the least, in proportion to the extension of time allotted for these pursuits. Protected from danger, men of wealth, industry and talents will become your inhabitants; nay, you will preserve the many valuable friends who now wish to remove, rather than be exposed, with their families, to such scenes of distress and danger.

" The obituary which I now present for your inspection, will, although very imperfect, be, nevertheless, useful. The want of a regular system for affording a correct knowledge of the diseases will now be felt, and, probably, remedied. The number of newly-imported Africans swells our bills of mortality to so great an extent, that I congratulate you on the time approaching when that aggravation will cease; they now compose one half of all the deaths in the year. Even the proportion of deaths among themselves has greatly increased; at first a twenty-ninth part of the number imported died; but now a fourteenth of the whole. The diseases and deaths in the year 1803, are only recorded from the first of July; yet this defect affords some light. It proves that a great propor-

tion of deaths from *tetanus* and *worms* occurs in the summer months; that *convulsions*, *pulmonic affections*, *apoplexy*, and *sore throats*, are much more fatal in the first part of the year. The proportion of deaths among children is distressing; one fifth, and in some years, one fourth of all that are born, die under five years of age. The proportion of such deaths is likewise increased in the summer season, as we observe them rated at nearly one third in 1803. From inaccuracy in reports, all deaths from *diarrhœas* are set down under the head of *diarrhœa infantum;* one fifth or one sixth of this number should probably be taken off, and set down under the head *diarrhœa*. The number of deaths under the head of *consumption*, including those of *debility*, amounts to an average of rather less than one sixth; of these it is fair to remark, that many cases are brought to us from the northern states, on account of the mildness of our climate in the winter season; and it is fondly to be hoped, that less attention to fashion, and more to health, in the tender sex, will hereafter greatly decrease the numbers who fall victims to this disease. Although the changes are great and sudden, our climate is certainly more favourable to *pulmonic affections* than that of the eastern and middle states; for even in New-York from one fourth to one third of all that die perish by these complaints. Among children, likewise, however unfavourable to them our climate may be reputed, the number of deaths is one seventh less, in proportion, than in New-York."

We take the present opportunity of recommending to our medical orators, the instructive and useful practice of adhering to fact and observation. And we inform those who have not seen the work of Dr. J. that his tables of mortality are the result of much care and pains; that they are among the best we have; and are worthy of being carefully examined.

ART. 4. *Thermometrical Navigation: being a Series of Experiments and Observations tending to prove that by ascertaining the relative Heat of the Sea-Water from Time to Time, the Passage of a Ship through the Gulf-Stream, and from deep Water into Soundings, may be discovered in Time to avoid Danger, although (owing to tempestuous Weather) it may be impossible to heave the Lead, or observe the heavenly Bodies, &c.* 8vo. pp. 100. *Philadelphia.* Aitken. 1799. *With a Chart.*

ALTHOUGH this performance has been so long before the public, it never, until lately, fell into our hands; and this is our apology for not having noticed it before. For certainly the subject of which it treats, and which indeed forms the fundamental principle of the compiler's research, is as fully within our province as any thing belonging to the department of experimental physics. The point aimed at is to show, that the thermometer may be used to improve navigation, and be advantageously employed in aid of the sounding-line, the quadrant, and the log, to determine the approach of a ship either to the gulf-stream on to land, on a voyage between North-America and Europe.

Observations seem to have shown that the temperature of the ocean is cooler near shoals and on soundings, than in its fathomless depths. An attempt is herein made to investigate rules by which navigators may determine, from the ascertained heat of the water on which their vessels float, whether they are on the high ocean, or approaching the shore. This is to be done by attending, not to any *absolute* temperature in either case, but to the *relative* heat of the ocean-water when beyond soundings, and when near banks, shoals or land.

Experiment has also sufficiently proved, that the gulf-stream is several degrees warmer than the ocean through which it moves. It is another object of the ingenious publisher of the present tract, to lay down regulations whereby the mariner may determine his approach to that remarkable current, his continuance in it, and his departure from it, either toward the eastern or western continent, as the case may be.

To elucidate this inquiry, the learned compiler lays before his friend, Commodore Truxton (to whom the book is dedicated), an extract from the maritime observations of Dr. Franklin, relative to the gulf-stream, and the use of the thermometer in finding it, as published in the second volume of the American Philosophical Transactions, p. 315: as also a memoir by his fellow passenger and confidential assistant, on the

employment of the same instrument in discovering banks, soundings, &c. This latter gentleman has given thermometrical journals of the experiments he made during four voyages, to wit; from Boston to Virginia; from Virginia to England; from England to Halifax; and from Halifax to New-York; and also of Capt. Billings, in a run from Philadelphia to Oporto and back.

The facts which he presumes the experiments have a tendency to establish are these: 1. That the water over banks is much colder than the water of the main ocean, and is cold in proportion to its shallowness. 2. The water over small banks is warmer than over large ones. 3. Water over banks near the coast is warmer than over banks far off, but is nevertheless colder than the neighbouring ocean. 4. The water over the banks immediately contiguous to the upland is warmer than over those which admit deep water between them and the coast; but is still colder than the adjacent sea. 5. The water between capes and headlands is an exception to these rules. 6. The passage from deep to shoal waters may, therefore, he thinks, be discovered by a regular use of the thermometer, before a navigator can see land; but as the temperature is relative, no particular degree can be ascertained as a rule, and the judgment can only be guided by the difference. Thus the water off Cape Cod was in August 58°, and in October 48°; while at sea in the former case it was 69°, and in the latter 59°; yet, though the temperatures were different, the difference was equally instructive in both cases.

The appendix to this instructive collection contains several statements from experienced naval officers, to prove the existence of a current setting southward and eastward from the latitude 45° north, or beyond, to the Azores, to the Bay of Biscay, the coasts of Portugal and straits of Gibraltar, and so beyond the Madeira and Canary islands to Cape Bajador in Africa, and the region of the trade winds; leading thereby to a conviction, that there is a motion impressed upon the Atlantic ocean by the trade winds, (and the earth's rotation) which not only gives rise to the great gulf stream, but to a slower and wider current, which, though not evident to ordinary observations, is at the same time capable of being ascertained by nicer research. And the vast body of ocean-water seems to move under this moderate impulse, from the tail of the gulf stream along the European and African coasts to the tropical latitudes, where it receives a new force and direction. The appendix also contains a report on the hypothesis by Cipriano

Vinercati, director of the marine academies of Spain; and the author's directions to practical navigators and commanders of vessels how to use the thermometer in navigation. These instructions are plain and circumstantial; and, of course, easy to be understood. And as we have no doubt that this instrument, though not worthy of total reliance, to the rejection of every other, is nevertheless capable of being employed to aid the navigator's judgment, in addition to the other means he possesses; we therefore recommend this part of the work before us to the reader's particular attention. Some other articles in this valuable collection will present themselves to his eye as he turns over the pages. We therefore conclude our remarks by extracting Capt. Truxton's letter to the author, on the subject of his publication. It is dated at Perth-Amboy, 12th of August, 1799, and contains the testimony of a navigator of acknowledged skill and genius.

"Your publication will be of use to navigation, by rendering sea-voyages secure, far beyond what you yourself will immediately calculate; for I have proved the utility of the thermometer very often since we sailed together, not only in crossing and re-crossing the gulf stream that runs along our coasts, but in the Ethiopian, Indian, Arabian and Chinese seas, gulf of Bengal, gulf of Siam, the various straits in the eastern world, and in many other parts of the globe.

"It will be found a most valuable instrument in the hands of mariners, and particularly so to those who are unacquainted with astronomical observations, and calculations for determining the longitude at sea; these particularly stand in need of a simple method of ascertaining their approach to, or distance from the coast, especially in the winter season; for it is then that passages are often prolonged, and ships blown off the coast by hard westerly winds, and vessels being in the gulf stream without its being known; on which account they are often hove to, by the Captain's supposing themselves near to the coast, when they are very far off, and by this means favourable spirts of wind are lost. On the other hand, ships are often cast on the coast by sailing in the eddy of the stream, which causes them to out-run their common reckoning. Every year produces new proofs of these facts, and of the calamities incident thereto."

We take pleasure in adding, that the employment of the thermometer in navigation has been facilitated by Mr. B. Connor's newly invented lead for sounding depths. To this is adapted a thermometer, and an easy apparatus for managing it. The curious will inquire for this instrument, and try it.

ART. 5. *A View of Fever: delivered in an Oration before the Medical and Chirurgical Faculty of the State of Maryland. By* Ennalls Martin, *M. B.* 8vo. p. 24. *Baltimore.* Fryer & Rider. 1808.

THE author of this Oration has been long known in the State in which he resides as an active and eminent practitioner of physic. We are gratified to find him associated with a number of other respectable Physicians of Maryland, in an attempt to combine the influence and talents of the medical body in the prosecution of a plan of professional improvement. The weight and excellence of character which he has uniformly exhibited on every occasion, is a sufficient pledge that his exertions towards this object will be productive of substantial advantage to the public.

In this oration, delivered, in consequence of appointment, before the Medical and Chirurgical Faculty of the State of Maryland, the author presents a judicious view of the nature and remote causes of fever. His opinions on this interesting subject seem to have been formed with much care and reflection; and he confirms them by a frequent reference to facts and observations which have fallen under his own notice. As a specimen of these opinions, we quote some of his remarks on the fevers of the summer and autumn, as they occur in his own vicinity, and on the camp and hospital fevers, as they appeared in the war of the American Revolution.

"Every year we are more or less subject to epidemic fevers on the eastern shore of this State. However, it frequently happens, that in some particular districts of the country, from partial falls of rain, heat and moisture are so unfortunately, though exactly combined to favour putrefaction of dead and corruptible matters in the swamps and marshes, that the whole mass of inhabitants are involved in the dreadful effects arising from the exhalations of these noxious matters; so that every grade of fever is brought into view from the *febricula* to the nosological *typhus gravior;* or, if you please, the frightful denomination of *yellow fever;* while, in other districts beyond the influence of these effluvia, from contrary circumstances existing, unusual health will prevail. The succeeding year perhaps the scene will be reversed. At the commencement of the epidemic, intermittents and remittents generally prevail uncombined, frequently alternating with each other; though not unfrequently various topical affections

occur at the same time. But those who have been once infected with fever, notwithstanding they may apparently recover good health, as the season advances, become more subject to topical affections, such as pleurisies, peripneumonies, &c. and, at the same time, to relapses of intermittents, remittents, and bilious affections, which frequently assume the topical form also, and of course become more formidable and destructive to life. At the same time, in districts where the noxious matters have not been volatilized into action by the putrefactive process, neither heat nor cold, nor any other cause, has been sufficient to excite fever in the human system; and I may venture to assert, from long observation, that the inhabitants will generally continue healthy until these noxious matters are again set afloat in the atmosphere by the powers of corruption.

"Hence it would appear clearly and decidedly, that animal and vegetable bodies produce in essence the same noxious effluvia; and that, under similar circumstances, they have the same effects on the human body in the production of *fever*.

"Besides the effluvia arising from putrescent bodies, it is asserted, and until lately it has been a very generally received opinion, that there is another source of fever, the effluvia arising from diseased bodies having something specific in their nature, so as to produce a specific fever, differing characteristically from all other fevers. If the exhalations from a body infected with this specific fever are specifically different from the exhalations or effluvia arising from healthy bodies, and produce effects specifically different, when applied to the bodies of men; then it must be admitted, there is a fever specifically different from all other fevers, not arising from these *contagious effluvia*. But if it is found, after thorough investigation, that the exhalations from the healthy bodies have produced, and continue to produce, the same fever, as the exhalations, or effluvia from diseased bodies, and that the exhalations from these diseased bodies are harmless in a free circulation of the air, then it is to be presumed, the fever produced by the one or the other, is one and the same.

"Contagions,' says Dr. Cullen, 'have been supposed to be of great variety; and it is possible this may be the case; but that they are truly so, does not appear clearly from any thing we know at present.' *Such diseases as are fully ascertained to be contagious, are of the eruptive kind*; and, (as he further testifies), 'for the most part, affect persons but once in the course of their lives.'

"It is well known (he observes) that the effluvia constantly arising from the living human body, if long retained in the same place without being diffused in the atmosphere, acquire a singular virulence; and in that state, being applied to the bodies of men, become the cause of fever,' which fever, (according to others, as well as Dr. Cullen), 'is highly contagious.'

"That the first part of this paragraph is correct, there can be no manner of doubt; but that the fever so produced is not directly from the effluvia of the bodies so confined, may be fully ascertained from this circumstance, that as soon as any one of those living human bodies is removed from 'the place where the effluvia are retained,' the exhalations from this body become perfectly innoxious. From hence it may be inferred, that the effluvia so confined are to be considered as any other mass of corruptible matter, which will undergo the process of putrefaction whenever they are placed in a situation to do so, and that they, like all other animal and vegetable matters, are altogether harmless with regard to the health of the living body, until they are reduced to the state of putrefaction.

"In ward No. 19, in the Brother's house at Bethlehem, the soldiers [during the war of the Revolution], were brought in from the camp labouring under various forms of disease, such as intermittents and remittents, with the long train of *nosological names.* The effluvia from their bodies in this ward, and I believe in all the wards of that large building, soon made dreadful havoc among them; at the same time infecting all those who attended them. Three of us, hospital mates, were fortunately put into a well ventilated room, in a separate house, where we were attended by nurses and physicians, and though numbers of persons who had no occasion to go into the hospital, or were afraid to do so, used to sit with us during the day, and the nurses slept in the room without, yet I have no recollection that a single individual took any thing like infection from us; or that the infection spread beyond the doors of the hospital. We all recovered in the course of some weeks, and though I had the hospital fever, or nosologically the *typhus gravior*, when it first commenced, for which I took, according to common practice, large quantities of bark and wine; yet, strange to tell, *at that period of time*, just as I was supposed to be on the recovery, I was seized with a *pain in the side*, and very probably should have soon quit the stage of life if I had not been very judiciously treated by bleeding, and other common remedies usual in cases of pleurisy. I

shall not pretend to make any comments on my own case, but shall trust you will make the proper application. As to the soldiers, though few went from the hospital alive, I believe they wanted for nothing so much as a freer circulation of air, less contaminated by the putrefying mass of exhalations from their own bodies, unfortunately confined, perhaps from imperious circumstances."

MEDICAL & PHILOSOPHICAL NEWS.

DOMESTIC.

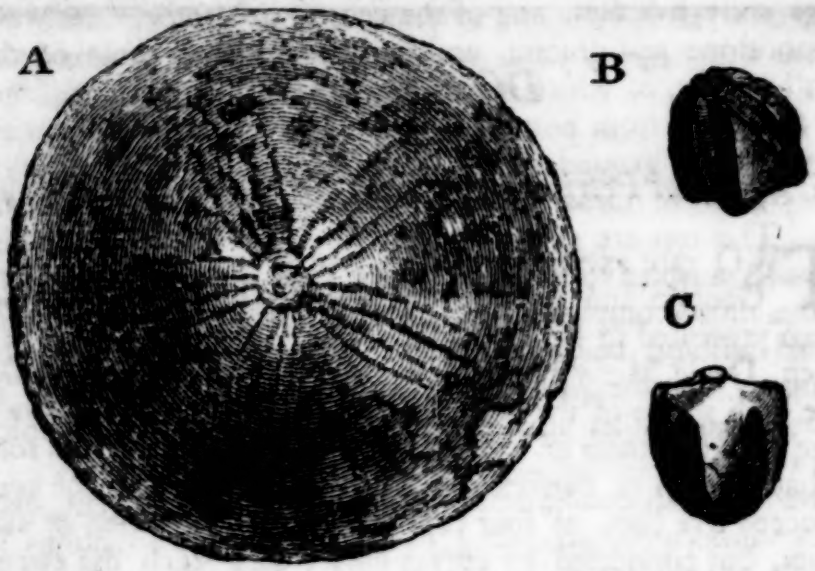
Uncommon Petrifactions, from Georgia and Kentucky.

TWO rare extraneous fossils have been discovered, one in Georgia and the other in Kentucky. They have both been presented to Dr. Mitchill. The former was brought by Gen. David Meriwether, from a spring not very distant from the high shoals of the River Apalachy. It is rather above the size and thickness of a Spanish dollar, except that it is somewhat gibbous or convex on the upper side. From the centre proceed five bars, of four rays each, in the direction of radial lines, but connected by curves before they reach the circumference. On the under side are five grooves or creases, corresponding with the five radial bars above, one crease below to four rays above. At the centre beneath is a considerable concavity, corresponding with the convexity on the outside. There is reason to believe that it is an *echinus*, or *sea-urchin*, of which the species are very numerous, some of them nearly flat, and many are found buried in the earth at great distances from the ocean. From the place where this was found, it was computed there were enough, by estimation, to fill a bushel. And what was very remarkable, they were so nearly alike that they seemed to have been fashioned in the same mould, and have not been discovered in any other place.

The latter of these rarities is from Kentucky. One of them had been received several years ago from Dr. S. Brown, of Lexington, now of Orleans; and several others since from Professor Woodhouse. They have a remote resemblance to a small acorn. At the larger end is a small projection resembling a broken footstalk. At the smaller extremity are six indentations, or orifices, which may be imagined to be the decayed pistils or stigmata of a former blossom. And on the sides are figured fine sharp-pointed surfaces, having a similitude to the quinque-partite calyx of a plant. It may be doubted whether this is of animal or vegetable origin. It also may be reasonably supposed to be a species of *echinus*.

Both the specimens are silicious and insoluble in acids.

Figures of them are annexed of the natural sizes. A, the upper side of the Georgia echinus. B and C, upper and lower views of the Kentucky echinus.



The new Lunatic Asylum in New-York.

In the course of our work, frequent and respectful mention has been made of that excellent and useful institution, the New-York Hospital. During 1797, and 1798, our two first volumes contained regular returns of the patients and their diseases from quarter to quarter. Afterwards, in our Hex. I. vol. v. p. 80, an account was given of certain capital improvements. An abstract of the returns for 1802—3, was given in our Hex. II. vol. i. p. 293; in vol. ii. p. 58 and 440, further and more circumstantial information was offered concerning it. Since which the bounty of the legislature has been shown in providing a great and lasting addition to its funds.

The governors of the hospital have thereby been enabled to execute a work which had been long in meditation. This is a house expressly for the reception and accommodation of maniacs. Accordingly, as soon as they found themselves able to undertake the erection of such a structure, it was done without delay. The best information was sought, and the most instructive precedents examined. And in the summer of 1806 the foundation of the new hospital for the relief of insane persons was laid. It has since been carried on with a steady hand, under the direction of *Thomas Franklin*, *Gilbert Aspinwall*, *John R. Murray*, *William Johnson*, and *Samuel Mansfield*, Esqrs. the committee for superintending the build-

ing. It is now nearly finished and will soon be opened for the reception of patients.

This noble edifice is ninety feet long. The width of the wings sixty-five feet, and of the central part forty. Its walls are sandstone and granite, and correspond with those of the main building, of which it may be considered as an appendage. It is fire-proof from bottom to top. It consists of four stories, reckoning the ground floor. It contains about sixty separate cells. Four of these are of large size, and ten of a second rate. The rest are single rooms, forty-five in number, and admirably adapted to their purpose. They are sufficiently airy for the most complete ventilation. Their walls are lime-washed without being plaistered. They are warmed in such a manner, that the patient, while he receives the benefit of the fire, can neither burn himself, nor the chamber in which he is confined.

Persons of all conditions, whether affluent or indigent, may be accommodated, according to their respective situations in life. The cells are made strong, and the confinement rigorous, in proportion to the violence of mental derangement, and the corresponding bodily disorder. Care is taken also to sever the servants of the house who attend the kitchen and laundry from all communication with the patients. None are to be admitted to them but the needful and proper attendants. It is intended to place the maniacs who are received into this asylum under the care of a special physician. It will be expected of him that he should study the various forms of insanity with the strictest attention: and by a steady perseverance in that pursuit, it may be reasonably hoped he will acquire more than usual knowledge of mental diseases. Where consultations shall be necessary, the consulting physicians of the New-York Hospital will also be the medical counsellors of the Lunatic Asylum. On the 6th of June, 1808, ARCHIBALD BRUCE, M. D. was appointed the physician.

This building was erected at an expense of at least fifty thousand dollars. Its architecture is well suited to the intended purpose, both as to the design and execution. Its object is to relieve mankind from one of the heaviest afflictions of life. And it may be affirmed with truth, that the Lunatic Asylum of New-York does honour to the city in which it stands, and the country to which it belongs. The eye is not offended in this institution with the sight of padlocks and bolts, nor the ear by the rattling of fetters and chains. And it is believed that the proper discipline can be established among the maniacs without the use of the whip. A report will be made annually of

the state of the Lunatic Asylum, and of all the patients it contains. This will have the desirable effect of giving information to families and the public concerning the individuals who are the objects of its beneficence, and of the success which may attend the attempts to mitigate the hardships of lunacy.

Oxygen a constituent ingredient in Alkaline Salts.

The beautiful and luminous analysis of potash and soda by Professor Davy, has confirmed an observation made by Professor Mitchill in 1801, that American potash contained oxygen. In the fifth volume of the first Hexade of the Med. Repos. p. 81, is an article of intelligence on the New-York inspection of potash. After describing some of the varieties of the potash as it appears in that great mart of the article, Professor M. has the following words: "There is reason too to believe, that in some of its forms, potash associates with oxygen; for many samples of it, when examined by the inspectors, *have an acid flavour, and impart sourness to the organ of taste:* and this peculiarity is very familiar to them. These sorts of potash are of a very faulty quality. In short, this is a substance, concerning which we have got a great deal yet to learn; and New-York, where it can be seen in all its forms during the manufacturing operation, and while it is undergoing inspection immediately after it is sent to market, is one of the best places for observing these things."

Also in 1802, the same gentleman openly declared his opinion that the composition of acids and alkalies was not so different and opposite as had been generally believed. For in the Med. Repos. Hex. I. vol. vi. p. 364—5, he states the probable convertibility of nitrous acid to potash, of lime both to potash and nitrous acid, of volatile alkali to nitrous acid, and of nitrous acid back again to ammoniac.

Professor Davy seems to have found the thread which will lead him and his penetrating followers through many of the intricate turnings and windings of this labyrinth.

An Investigation of the Facts relative to a descent of Stones from the Atmosphere to the Earth, on the 14th of December, 1807, in the Towns of Fairfield, Weston, and Huntington, Connecticut, and to the Meteor whence these earthy Bodies proceeded. In a Memoir addressed to Samuel L. Mitchill, *by the Rev.* Horace Holley, *and* Isaac Bronson, *Esq. of Fairfield, dated Dec. 23, 1807.*

We take the liberty of communicating to you, at an early period, a short account of one of the most extraordinary, though

not unprecedented, events in the history of the world. We do this the more cheerfully, notwithstanding our want of a particular personal acquaintance with you, because we know the ardour and perseverance with which you pursue subjects of this kind; and because we wish that the interests of science may be, as much as possible, promoted by some accurate and suitable analysis of the enclosed substance.

Some general account of this very interesting subject will probably have reached you before you receive our letter; but we trust, that ours will still be highly acceptable to you, because we have been to the very place, hereafter mentioned, and are able to give you a narrative perfectly authentic.

On Monday, the 14th instant, between daylight and sunrising, a ball, apparently of fire, was seen, not far from the horizon, in the north, which rose, or proceeded forward, nearly in a meridional direction, with a tail of from three to six feet, until it arrived almost in the zenith, and then vanished. In about a minute afterwards an explosion was heard, consisting of three successive reports, as loud as cannon, ending in a noise like distant thunder.

So far all has been seen and heard by multitudes in this part of the country, for many miles round. But in Weston and Huntington, two neighbouring towns, facts, vastly more astonishing, have taken place.

In Weston, William Prince, a respectable farmer, and his wife, about six o'clock A. M. after seeing the flashing light from the ball, and hearing the explosion in the air, heard also a noise, as they thought, in the house, somewhat resembling a door that had been opened, violently thrown against its posts, by a hard wind. They were a little alarmed at the singularity of the noise, and immediately arose. When Mr. Prince went out he was surprised to find a hole made about twenty-seven feet from his house, in his court-yard, which is a smooth, hard-trodden grass-plat. At first he did not suspect the cause; but when his curiosity led him to make more diligent search for it, he dug up from this hole a large, solid, and uncommon stone, weighing thirty-five pounds, of which the enclosed is a specimen. It had sunk two feet perpendicularly into the earth, making a hole very little larger than itself. On conversing with his neighbours about it, one David Hubbell, a man twenty-five or thirty years of age, and his father, both honest yeomen, told him that they were up at the time abovementioned, not far from his house; saw the light, and the ball of fire; heard the explosion in the air first, then a whiz-

zing of something over their heads; and the fall of it, as they judged, near his house.

These facts we gained from the mouths of the persons themselves, on the spot, the following Saturday, which day we spent for the express purpose of ascertaining the truths concerning the common reports which we had heard.

In another part of the same town, from the former place, five miles distant, near the house of Elijah Seely, a respectable farmer also, a stone, of exactly the same kind, fell upon a shelly rock, principally lying under ground, covered with a green sward, and broke into pieces, sufficient to fill a bushel basket. It broke off a stratum or two of the rock, and made a hole in the green sward, nearly circular, having one diameter five feet, and the other four. It sunk three feet perpendicularly into the earth in shooting obliquely six feet in the direction of the surface of the rock, which was an inclined plane, on a piece of rising ground of a moderate ascent. It threw sods and dirt some distance, remains of which we saw in a wall ten yards off. A Mr. Staples, in the neighbourhood of Seely, saw this stone fall. All the pieces collected are supposed to weigh not far from two hundred pounds. Apparent sparks of fire were seen to accompany this piece, which is conjectured to have been the principal, after the explosion. The account of Seely and his wife agrees in time and all the material circumstances with that of Prince. These facts also we learned on the spot.

In Huntington, five miles from Prince's, and ten from Seely's, a small stone, from the same mass, fell at the same time in the morning, on a rock, within six yards of a barn, and thirty from the house of Mervin Burr, and was taken up by him in the course of an hour. Burr's wife was out of doors, and heard this stone whiz through the air, and strike on a rock with quite a loud report. She, at the same time, heard several others fall, in a marshy ground near the house.

The outside of the stone is black, as if it had been burned and smoked in a fire. The smooth part of the enclosed specimen will show you a little of the inside.

All the above facts can be proved in the most ample manner. We have so thoroughly examined into this subject, the evidences and the circumstances, that we affirm confidently, that no facts are more clearly evident, and more justly entitled to the most hearty assent

P. S. Since writing the above, Professor Silliman and Professor Kingsley, from Yale College, have called on us, and in-

formed us, that they have just returned from the place where these stones have fallen, and that three more have been discovered, from which 45 pounds of the stone have been taken; ten from one, thirteen from another, and twenty-five from the third. The largest piece they have been able to obtain for their cabinet is six pounds. We have one weighing eleven pounds fifteen ounces.

Meteor seen at Poughkeepsie.

On Monday morning last, (Dec. 14) between break of day and sunrise, a terrestrial meteor was seen from this place, flaming across the heavens, in a direction from N. W. to S. E. Apparently it was as large as the moon at full, inconceivably light, and travelling with amazing velocity, leaving a luminous trail behind. The light occasioned thereby, when it crossed the zenith, was nearly equal to mid-day. A ridge of heavy dark clouds lay along the south and east, behind which it passed when it had arrived within thirty degrees of the horizon, illuminating the cloud for a moment in all its parts. Within about four or five minutes, a heavy explosion was heard, from the region of the heavens, where it disappeared, resembling the discharge of a cannon.

On the 17th of October, 1778, about six or seven o'clock in the evening, a meteor of a similar description passed over this and the New-England States, first appearing in the S. E. and exploding in the N. W. about 30 degrees above the horizon. [*Connecticut Journal, Dec.* 14, 1807.

Meteor at Weston.

On the morning of the 14th instant, (Dec.) at about six o'clock, a terrestrial comet exploded nearly over the town of Weston, about nine miles from this place. The atmosphere was foggy. From a great number of spectators in different positions, different accounts of its size, the length of its train of fire, its course and altitude have been reported.

Its course was probably about one point west of south, or S. by W. proceeding from N. Its altitude from one to five miles. The length of its trail three feet. The size of its solid body about three feet in diameter. The cause of its explosion was probably the dampness and density of our atmosphere. The stones fell in all directions, and have been found as much as six miles apart, and of the astonishing size of thirty-five pounds; and some pieces which fell on rocks are supposed to have weighed 150 pounds.

At New-Milford, more than twenty miles from the point of explosion, the shaking of the houses was more severe than nearer the place of its discharge. Mr. Edward King has published his remarks on the falling of stones from the atmosphere, both in ancient and modern times. His inquiry was excited by the remarkable explosions which took place in Tuscany, on the 16th of June, 1774. That meteor was surrounded by an atmosphere of its own, and continued its discharges of stones of a large size for some time.

[*Bridgeport Advertiser, Dec.* 24, 1807.

Medical Society of New-Hampshire.

At a statute meeting of the New-Hampshire Medical Society, holden at Exeter, on Wednesday the 25th of May, A. D. 1808, the following officers were chosen for the current year.

AMMI R. CUTTER, *M. D. President.*
NATHAN SMITH, *M. D. Vice-President.*
LEVI BARTLETT,
THOMAS S. RANNEY,
EBENEZER LERNED,
JOSEPH TILTON,
LYMAN SPALDING,
} *Counsellors.*
LYMAN SPALDING, *M. D. Secretary.*
THOMAS S. RANNEY, *Treasurer.*
NATHAN SMITH,
WILLIAM CUTTER,
LYMAN SPALDING,
EBENEZER LERNED,
JOHN FOGG,
EZRA BARTLETT,
} *Censors.*
SAMUEL TENNEY, *Librarian.*
EBENEZER LERNED, *Deputy Librarian.*

The Natural History of Sicily.

Prior to 1696, Francis Cupani, a Franciscan monk, made large collections for a botanical history of Sicily. He announced a publication on the subject, under the title of *Panphyton Siculum*, but died in 1710 without executing his design. In 1713, however, the princes of Catolica and of Villafranca, who had been his patrons, caused a few impressions to be made of the engravings that had been prepared. These amounted to about seven hundred; and were unaccompanied with any printed description or explanation.

Afterwards, Anthony Gervasi, a pupil of Cupani, under-

took a continuation of his master's work; but was taken off by death in 1719, leaving only 198 plates engraved.

Again, in 1789, Paulo Chiarelli, in conjunction with his father and brother, meditated a complete edition; but the death of the two latter so disconcerted the plan, that the survivor found it inconvenient to proceed, but chose to defer the publication for a time.

But before this event took place, Mr. C. S. RAFINESQUE SCHMALTZ engaged in the same project, and procured the assistance of Salvator Hippolito, to do the necessary engraving. He has enlarged the plan, and intends to embrace the whole natural history of that famous island, under the title of PAMPHYSIS SICULA. His great work will appear in the Latin tongue, and extend to six, or perhaps eight, volumes in quarto; two of which will consist of prints. It will treat of 1400 plants, 500 animals, and 100 minerals, making in the whole 2000 natural objects.

This is an example worthy of imitation in America. Our readers will recollect with pleasure that this editor has surveyed a large part of the middle states with the eye of a naturalist; and is now employed in the office of Mr. Gibbs, the Consul for the United States at Palermo. We look forward to the time when each great region or district in the western world will possess its book of topographical description; to which the student and traveller may turn whenever they desire to ascertain the productions by which it is distinguished in either of the three great departments of nature.

Notice on the Medical Properties of some North-American Plants: addressed to Dr. Mitchill by C. S. Rafinesque Schmaltz.

1. The *ludwigia macrocarpa* of Michaux (*ludwigia alternifolia*, Lin.) is called *Bowman's root* near Baltimore; its roots having been found by a man of that name to be a good and mild emetic; and some physicians, particularly Dr. James Smith, have employed it in that way, in decoction, with effect.

2. The leaves of the *crategus crus-galli* have been found very successful in Baltimore against the children's hooping cough; they were used like tea.

3. The *sanicula marilandica* had been long used by several Indian nations against syphilis: an Indian trader communicated this fact to Dr. Crawford, of Baltimore, who made some experiments concerning it, and found it a very good palliative and auxiliary remedy in that disorder. He has since often employed

successfully the whole plant in cold infusion, instead of the sarsaparilla and lobelia syphilitica: he likewise found it useful in the same manner in consumptive cases.

4. The yellow juice of the *argemone mexicana*, or *ladies' thistle*, has the property of corroding warts when applied upon them.

5. The bark of the root of the *juglans cinerea*, called *white-walnut tree*, or *butter-nut tree*, is a caustic, and being dried and pounded, may be substituted to the Spanish flies, for cauteries.

6. The *eupatorium rotundifolium*, called *cow-tongue* in Maryland, has been used there successfully in the consumption, by drinking its infusion like tea.

7. The *collinsonia canadensis*, or *heal all*, is one of the best preservatives and cure against the venomous eruptions caused by the poison of some sumacs, such as *rhus vernix*, *rhus radicans*, and *rhus toxicodendron*.

8. The *solidago odora* of Aiton and Michaux, or the *sweet-scented golden rod*, is a light astringent, and has been used with good effect, in the form of decoction, tea, or ptisan, in dysenteries, and when it is required to heal and strengthen the bowels.

9. The *polypodium virginianum* is called *rock fennel* in Northampton county, Pennsylvania, and is given to hogs and pigs to cure them of the distemper.

10. The nuts of the *nelumbium luteum* of Michaux, or *great yellow water lily*, are very nourishing and restorative. Jellies, preserves and syrups may be made with them, and given to convalescents to restore their strength.

Hunter's Treatise on the Diseases of Lascars.

Mr. William Hunter, a member of the marine Medical establishment of the English East-India Company in Bengal, has forwarded to the Editors a copy of his book, published at Calcutta in 1804, under the title of An Essay on the Diseases incident to Indian Seamen, or Lascars, on long Voyages. As these Asiatic mariners are frequently found in New-York, and are often patients in the great hospital there, it may be proper to give some account of this performance. Five hundred copies were ordered to be printed in 1804, for the use of the Company. It is in folio, and, besides the principal memoir, contains a very large appendix of twenty-three articles.

The author treats of fever, pneumonia, phthisis, hepatitis, scurvy, and dropsical swellings, as fatal to Lascars. These he

traces chiefly to general debility and suppressed perspiration. For these accidents he proposes various remedial expedients, in respect to diet, clothing, exercise, ventilation, cleanliness, and medical treatment.

The book contains various reports of the state of health and mortality among the Lascars, on board the Company's ships between Bengal and England, drawn up by Messrs. Thornhill, Hare, Ross, M'Whirter, Wake, Chrystie, Mac Rae, Colhun, Roberts, Wright, Raitt, Knox, Procter, Hiatt, Grant, and others. In these there are many detailed and practical remarks, which cannot fail to be interesting in a high degree to the East-India Company's service.

The papers from Mr. Chrystie, inspector general of hospitals on Ceylon, on the disorder called by the natives *Beriberi*, and by the author *Anasarca cacotrophica*, are more particular than we have seen in any other writings, (p. 77 & seq. to 141). Some call it *Asthma Hydropicum*. It was particularly mortal both to the Indian and English troops in the Candyan war.—In appendix, No. 11, it is shown that scurvy may be induced by deficiency of nourishing food, and especially of recent vegetable matter, even where no salted meat, nor indeed any animal substance whatever, has been used. No. 41 is a learned tract on the external application of oil to human bodies; and in No. 51, Capt. Wright copies from the Bengal Hircarrah of 1803, the mode proposed by Dr. Mitchill, to render ocean water fit for washing linen and other goods and clothing, by alkalizing it with potash or soda.

Voyages from New-York to the Fejee Islands, to cut Sandle-wood.

The Fejee Islands are in Polynesia, and form part of the cluster called the *Friendly Isles*, of which Tongataboo is one of the principal. Some of these had been visited by the Dutch navigator Tasman in 1643. They lie to the northward of New-Zealand, in about 180 degrees longitude east of Greenwich, and nearly 16 or 17 south latitude.

The following extract of a letter from Coles, Fanning & Co. to Dr. Mitchill, affords one of the most striking illustrations of the enterprize of the Americans and of the extent of their commerce, dated New-York, April 14, 1808.

"In the month of August, 1806, we dispatched the ship Hope, capt. Brumley, on a voyage to the Fejee Islands, to procure a cargo of Sandle-wood for the Canton market. The Hope having succeeded at the island of *Toconroba*, in procuring

a full cargo for herself, and in part freighting an English brig that she met with at said island, arrived in November last at Canton, where both cargoes were sold at about 25 cents per pound. While at the Fejee Islands the Captain of the Hope contracted and paid in part to the chief of the island for about 270 tons more of Sandle-wood, (this being about the whole quantity of good wood remaining on the islands) to be taken away in a certain time. In order, therefore, to seize so profitable a speculation while there were so few to participate in it, we built and sent the ship Tonquin, commanded by E. Fanning, in May, 1807, to meet the Hope at Canton; but the Hope not having arrived in time for Capt. E. Fanning to fulfil our original intentions, the season was so far wasted as to compel him to load the Tonquin for New-York, and he met the Hope in the mouth of the Tygres (or Canton river.) Both vessels will now, therefore, return to the United States under no expectations that the trespasses of European nations would compel our government to inhibit their departure again on said voyage. Being thus situated, we have taken the liberty to address you for your advice, whether, under the embargo law, or the supplements, the Executive will not have sufficient authority to permit us to proceed immediately with a ship sufficient to bring the above quantity of wood, and by that means save to ourselves, and our country, at least $130,000, which will, probably, if such permission is refused, fall into English hands; for you will please to observe, that there was in the first place but a small patch of the wood on one of the islands, that the Hope left four English vessels there, selecting from the refuse a little of very inferior quantity, and in expectation too, that some accident would prevent our ship from returning within the limited time, which would release the chief from his engagement, and leave him at liberty to sell the good wood purchased by Capt. Brumley to them. From the knowledge Capt. Brumley has of the chief's conduct, we rely as confidently on his keeping his engagement for the time limited as we would on the chief of the most civilized nation. You will no doubt recollect that the Chinese have long considered Sandle-wood as possessing religious properties; they are accustomed to burn it on their altars as incense; their god JOSH, is supposed always out of humour, unless his nose is regaled with its delightful effluvia. We have enclosed a small piece of the wood, that you may have an opportunity of judging how far a Pagan god's taste may be deemed exquisite. The Hope is the first vessel, to the best of our knowledge, that ever proceeded from the United States on this voyage, and

on her return we presume she will pay about 40,000 dollars into the treasury for duties from the proceeds of the wood, which originally cost only about nine hundred dollars."*

Military Academy at West-Point, in the Highlands of New-York.

By the act of Congress passed 16th of March, 1802, the President of the United States was authorized to establish a corps of engineers. And when organized, they were stationed by law at West-point, on the bank of the Hudson, about 60 miles north of New-York city, in the middle of that mountainous and picturesque region, which has afforded so many subjects for the pencil.

This military school was made to consist of one engineer, six assistants, and ten cadets. The chief engineer is allowed the pay, rank and emolument of a major; two of the assistants those of captains, two others those of first lieutenants, and the remaining two those of second lieutenants. The cadets are allowed pay at the rate of 16 dollars per month, and two rations per day. The whole corps is limited to twenty officers and cadets; among whom the President may make promotions, founded upon his judgment of particular merit, and without regard to rank.

This military academy is placed under the direction of the President of the United States. And the principal engineer, or, in his absence, the next in rank, has the immediate superintendance. The Secretary at War is authorized, at the public expense, and conformably to the Presidential instruction, to procure the necessary books, implements, and apparatus for the use of the institution. It is worthy of remark, that this military school was originally begun in 1801 by a private citizen, and was then no more than a mathematical seminary for a few cadets then in service. The usefulness of the plan was immediately perceived; and for the purpose of improving upon it, and of giving it stability and legal sanction, the before mentioned regulations were made. On the 14th of March, 1808, the chief engineer, among various matters, reported to the President as follows:

"A part only of the officers were appointed soon after the passage of the act, of whom the major, who was ex-officio the chief engineer, and two captains, took charge of the aca-

* There was, in fact, but a small quantity of the wood on one of these islands, although the groupe consists of at least three hundred.

demy, the students of which were the cadets belonging to the regiment of artillery. The major occasionally read the lectures on fortification, gave practical lessons in the field, and taught the use of instruments generally. The two captains taught mathematics, the one in the line of geometrical, the other in that of algebraical demonstrations.

" As the corps was small, as it had little or nothing to do in its more appropriate professional duties, and as the students were few, the institution went on producing all the effect in its power, and all that could be expected on its limited scale. It was soon discovered that mere mathematics would not make either an artillerist or an engineer, and a power was given by law to appoint a teacher of drawing and of the French language. Had this law, instead of absolutely limiting the number of teachers, and designating their duties, left it generally in the discretion of the President to appoint such and so many as he might find requisite to produce the effect contemplated by the establishment, and left the internal organization to him, who, from constant observation, could judge of the most expedient one, with a reasonable but ample appropriation, we should at this day have a greater number of well instructed young officers than we can now boast of. From that time to this, however, the academy has progressed beyond what could have been expected from its means; but now the first mathematical teacher has resigned, and the second has for several years been employed as surveyor-general of the United States in the western country.

" During the last year a citizen of eminent talents as a mathematician has been employed as principal teacher, and a first lieutenant of engineers performed the duties of assistant teacher, while the professor of French and drawing confined his abilities to these branches. So far as talents can go, nothing is wanting as to these teachers. They are all capable in the highest degree. The subscriber is only apprehensive that he shall not be able to retain them. Mr. Hasler, the chief mathematician, is already designated for a survey of the coast, when circumstances shall permit that business to be undertaken, and it could not be committed to more able hands. Mr. Masson, the professor of French and drawing, is a man of too great and too extensive abilities to be kept in a situation so much below his merit; this gentleman being perfect master of the French and English languages, fully acquainted with all that has been written on the art of fortification, and eminently distinguished in science and general erudition, ought, in the

opinion of the subscriber, to be placed at the head of what the French call *le genie*, which cannot be literally translated in its extensive sense: it signifies the art of an engineer generally in all its branches. Mr. Masson being the only teacher designated by the law, he is the only one that, exclusive of the corps of engineers, can be said to belong to the institution.

"In short, the military academy, as it now stands, is like a foundling, barely existing among the mountains, and nurtured at a distance out of sight, and almost unknown to its legitimate parents. The questions that have frequently been put to the subscriber by members of Congress, evidently show, that the little interest the institution has excited, arises solely from its being unknown to those who ought to be, and doubtless would willingly become its generous guardians and powerful protectors. Had it been so attached to the government (its real and only parent) as to be always with it, always in sight, and always in the way of its fostering care, it would probably have flourished, and have become an honourable and interesting appendage to the national family."

French Imperial Prize Medal for the best Dissertation on the Croup. Translated for the Medical Repository, from the Paris Moniteur of 29th July, 1807.

Home Department.

Competition opened on the Subject of the Disease commonly known by the Name of Croup.

The home department, pursuant to an order given by his Majesty the Emperor, on the 4th June last, from his head quarters at Finckenstein, to open a competition on the disease denominated *the croup*, whose object shall be a prize of 12,000 francs for the best practical work on that disease, and in consideration of the report made by the School of Physic in Paris, dated the 16th instant, decrees:

Art. 1. A competition is proposed on the following subject: "To determine, from practical trials in the art, and by "correct observations, the characters of the disease known "by the name of the *croup*; and the nature of the changes "which constitute it; the external and internal circumstances "which concur in its developement; its affinities with other "diseases; to establish therefrom, through a steady and com-"parative experience, a more efficacious treatment; to indi-"cate the means of stopping its progress, and preventing its "attack."

2. All national and foreign physicians are invited to the

competition proposed for the curative and preventative treatment of the Croup.

3. The dissertations must be composed in Latin or French, and be legibly written; they must bear at their head a distinctive mark, corresponding to a similar device enclosed in a sealed cover, and containing, among other matters, the name and address of the authors. This billet must be connected with the dissertation.

4. Physicians who may have heretofore published any work upon this disease, may reproduce it for competition, by reducing it to the prescribed forms, and adapting it to the solution of the proposed questions.

5. The authors shall confine themselves to the support of their opinions by practical facts, and by actual observation and experience; from which the whole theory shall be but the necessary consequence. They shall comply, as far as possible, with the series of questions detailed at the end of this prospectus, as being the most proper to develope every sort of research connected with the full solution of the principal questions.

6. All the dissertations intended for the competition must be addressed to the minister of the home department. To give scope sufficient for favouring experiments and observations, the competition will not be closed until January 1, 1809. After this term, the dissertations which shall arrive at the department, will not be admitted to the competition.

7. A special commission shall be appointed to make a report to the minister on the works submitted for the prize. This commission shall be composed of twelve members, of whom four shall be taken from the class of the physical and mathematical sciences of the institute, four from the professors of the school of physic, in Paris, who are not members of the institute, and the remaining four from the body of physicians in the city.

8. A prize of twelve thousand francs shall be adjudged to the physician who shall have written the best dissertation on the nature of Croup, and on the means either of preventing the disease, or treating it with success.

9. The Medical School of Paris shall forthwith present to the minister, a collection of all the facts and observations relative to the croup, whether contained in the national or foreign works in its possession, or in the unpublished memoirs of which the Royal Medical Society has been the depositary. This collection shall be published for the purpose of shedding

new light on the nature of croup, and of guiding the competitors in their labours.

Given at Paris, 21st July, 1807.

The minister of the home department,

CHAMPAGNY.

Special Queries, serving to explain the Prospectus issued on the Disease known by the Name of Croup, Angina Stridula, Angina Polyposa, *and* Angina Membranosa.

To begin with an exact and characteristical description of all the stages of the disease known by this name, and then to render satisfactory information on the following points:

1. *Origin and frequency of the Disease.*

Among the descriptions of diseases which have been transmitted to us by the ancients, or by the older authors of the last century, are there any which present the diagnostic symptoms of croup?

Has this disease become more common in our countries than it was before it was better known and better observed?

Is it more frequent in northern regions than it is among us?

Did it exist as commonly as at present before the middle of the last century?

How far has it actually shown and spread itself in our climates?

2. *Peculiar and discriminating Characters.*

What difference is there between this malady and pulmonary catarrhs, as well as the various species of angina?

Do the symptoms peculiar to it indicate an essential difference between this disease and others?

Are there any ages exempted from it, and which are particularly the periods of life more especially liable to it?

3. *Occasional determining Causes.*

Are there known and assignable circumstances which concur to spread it more generally over one country than another?

With what prevailing diseases is it most commonly the concomitant?

Is it ever epidemic?

Ought it to be regarded as contagious?

Is it sometimes the consequence of another disease, and particularly of an eruptive one?

Is there any connection between the occurrence of this

disease and the epidemics of measles, scarlatina and whooping-cough?

4. *Mortality.*

What is the relative mortality of this disease?

5. *State of the Organs.*

What is the nature of the mucous concretion which gives rise to the false membrane observed after death, and which forms the tubes that are sometimes voided during the disease?

Apart from the natural causes which determine this concretion in the croup, can art produce a similar one in living animals? And what are the phenomena observable during the experiments that give rise to it?

In what condition is the mucous membrane peculiar to the trachea and bronchia found to be, beneath this concretion?

How far down the wind-pipe does the alteration peculiar to this disease extend?

Can the alteration which constitutes the disease be distinguished from those which in the lungs are the effects of the disease and the consequences of death?

6. *Treatment.*

What is the most proper treatment in this disease?

Is there any one that is specific?

Is there any one to which may be specially and clearly ascribed both the alleviation and cure, considered apart from the favourable circumstances resulting from the strength of the patient, and from the degree of intensity in the disease, which may sometimes favour a spontaneous recovery?

7. *Precautions.*

Are there signs from which a future invasion of the croup may be foreseen? Are there means of preventing it, and of guarding against it?

Other Articles of Intelligence from France.

Paris, Feb. 3, 1808.

At Marseilles, some time ago, letters and pamphlets were torn to pieces at the health-office, and soaked in vinegar, to prevent the spreading of contagion. These unfortunate books and papers were on board a vessel from New-York. And the proceeding took place because the captain had not kept them on board until he had finished his quarantine. This is the way of keeping off contagious distempers. And thus does Mar-

seilles treat not only the Mahometans, but even all other nations and municipalities who have adopted her burthensome and unnecessary system of health laws.

Le Clerc, professor of Legal Medicine in the school of Medicine at Paris, near the close of last month opened the body of an individual whose death was occasioned by a putrid fever, *(fievre ataxique)*. In dissecting certain parts he wounded his finger with the point of the dissecting knife. The virus penetrated almost instantaneously to the shoulder, and soon afterwards through the whose system. He died the third day after this accident took place. The professors of the college immediately examined his viscera, and found them quite in a putrid state.

His loss is much regretted. He is said to have possessed a very deep knowledge of all the branches of medicine. He was secretary of the society of the medical college at and after its establishment; and was ordinary physician to her Majesty the Empress, who honoured him with her confidence and esteem.

Mr. *Vanderlyn*, of Kingston, State of New-York, is arrived in Paris, after a residence of two years at Rome. He has finished his picture, the subject of which is "Caius Marius on the ruins of Carthage." I find it has been much admired at Rome, and I presume will not be less so at Paris. However, it is not yet arrived here. The inconstancy of human grandeur—a city in ruins, and a fallen general, when delineated in an able manner, present an object highly interesting.

The plan of a National University, or system of general instruction, is arranged agreeably to the intentions of his Majesty. Nothing has as yet appeared on this subject, though the *bulletin* containing the outlines of this establishment is already printed. From what I have heard, it appears to have some features similar to those in the Constitution of Georgia. The College of France, museum of the garden of plants, &c. are to form a branch. A normal school is to be attached to it. Young men who have distinguished themselves in different schools are to be afterwards educated *gratis*, for the purpose of becoming professors. They are to receive a yearly salary of 5 or 6000 francs, and they will have free lodgings, as the old church of the *Sorbonne* is destined for this purpose.

Mr. *Rafinesque Schmaltz* is engaged in researches concerning the natural and botanical history of the United States of America. He is compiling a *florula Delavarica*, or an account of the plants he found in the state of Delaware; and a *florula Columbica*. He will also soon send you a catalogue of the European plants naturalized in the United States.

Gay Lussac of the Polytechnic school, and Thenard of the College of France, have repeated the experiments of Davy on potash, with success. They have since performed them in the presence of his Majesty, who has granted twenty-five thousand francs for the purpose of constructing a galvanic pile of great dimensions.

The system of Dr. Gall, of which I offered you some account in my last, still occupies the attention of the public. He has nearly completed his public course of lectures—twelve in number. The price of subscription is five louis, except for students, who pay only half that sum.

I have the pleasure of informing you, that the librarian of the National Institute has instructed me to furnish for their library, all the volumes of the Medical Repository that have already appeared, and I have written to my correspondent at New-York to transmit them to me by the earliest opportunity.

Voltaic Electricity considered as one of the most active Powers in Chemistry.

A memoir under the title of the *Bakerian Lecture*, was published in the first part of the Transactions of the Royal Society in London, for 1807, on some of the *chemical agencies* of electricity. It was composed by Professor Davy, and contains much original experiment and reasoning. As containing new views of chemical composition and decomposition, and of the modification of those processes by Voltaic electricity, we give a concise abstract of it. This penetrating inquirer has opened many views of chemical attraction and affinity, which the curious will contemplate with high satisfaction.

In offering his illustrations of those appearances which designate the hitherto unobserved properties of this powerful and extensive material agent, he treats, 1. *Of the changes produced by it upon water*; and concludes from a great variety of nice and well-devised experiments, that the appearance of alkalies and acids in galvanized water, arose from impurity in

the water, from the substances employed, or from the atmosphere; and that water chemically pure is decomposed by electricity into gaseous matter alone, to wit, oxygen and hydrogen. 2. *Of the action of this power in decomposing various compound bodies.* When acid and alkaline matters were present in the experimented subjects, it was constantly found that the acid collected in the water round the positively electrified metallic surface, and the alkali round the negatively electrified metallic surface. And in exposing sulphate of lime, of strontites, of barytes, of potash, of soda and of ammoniac, fluate of lime, nitrate of potash and of barytes, compact zeolite, vitreous lava, and various other substances to the action of the galvanico-electrical circle, decomposition in every instance took place, with an acid collected at the positive wire, and an alkali at the negative. 3. *Of the manner in which this agent transfers certain of the constituent parts of bodies.* When compounds of the strong mineral acids with alkaline or alkalino-earthy bases, were subjected to its influence in the proper apparatus, the subject was decompounded, and the base always passed towards the negative, and the acid towards the positive points of the machinery. This decomposition and attraction of the respective constituent ingredients took place at the distance of two thirds of an inch from the wires; and within the sphere of its operation, the electrical attraction seemed to supersede and suspend the force of chemical attraction. 4. *Of the passage of acids, alkalies, and other substances through various attracting chemical menstrua, by means of this sort of electricity.* Acids and alkalies passed through water containing vegetable colours without affecting them, or apparently combining with them while under this influence. Sulphuric acid passed through a solution of lime, potash, soda, and ammoniac, in its way to the positive point, without mixing. Muriatic and nitric acids were by this same superior influence, detached from their bases in common salt and salt-petre, and conveyed to the positive point through concentrated alkaline menstrua without combining. And conversely, lime, soda, potash, strontites, barytes, ammoniac and magnesia were severally attracted so forcibly by the negative wire, that they travelled through solutions of sulphuric, muriatic, and nitric acids, without mixing, to arrive at it. Experiments variously modified, and made upon vegetable and animal substances, confirmed the same conclusion. 5. *Of some general observations on these phenomena, and of the mode of decomposition and transition.* It hence

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In offering his illustrations of those appearances which designate the hitherto unobserved properties of this powerful and extensive material agent, he treats, 1. *Of the changes produced by it upon water*: and concludes from a great variety of nice and well-devised experiments, that the appearance of alkalies and acids in galvanized water, arose from impurity in

the water, from the substances employed, or from the atmosphere; and that water chemically pure is decomposed by electricity into gaseous matter alone, to wit, oxygen and hydrogen. 2. *Of the action of this power in decomposing various compound bodies.* When acid and alkaline matters were present in the experimented subjects, it was constantly found that the acid collected in the water round the positively electrified metallic surface, and the alkali round the negatively electrified metallic surface. And in exposing sulphate of lime, of strontites, of barytes, of potash, of soda and of ammoniac, fluate of lime, nitrate of potash and of barytes, compact zeolite, vitreous lava, and various other substances to the action of the galvanico-electrical circle, decomposition in every instance took place, with an acid collected at the positive wire, and an alkali at the negative. 3. *Of the manner in which this agent transfers certain of the constituent parts of bodies.* When compounds of the strong mineral acids with alkaline or alkalino-earthy bases, were subjected to its influence in the proper apparatus, the subject was decompounded, and the base always passed towards the negative, and the acid towards the positive points of the machinery. This decomposition and attraction of the respective constituent ingredients took place at the distance of two thirds of an inch from the wires; and within the sphere of its operation, the electrical attraction seemed to supersede and suspend the force of chemical attraction. 4. *Of the passage of acids, alkalies, and other substances through various attracting chemical menstrua, by means of this sort of electricity.* Acids and alkalies passed through water containing vegetable colours without affecting them, or apparently combining with them while under this influence. Sulphuric acid passed through a solution of lime, potash, soda, and ammoniac, in its way to the positive point, without mixing. Muriatic and nitric acids were by this same superior influence, detached from their bases in common salt and salt-petre, and conveyed to the positive point through concentrated alkaline menstrua without combining. And conversely, lime, soda, potash, strontites, barytes, ammoniac and magnesia were severally attracted so forcibly by the negative wire, that they travelled through solutions of sulphuric, muriatic, and nitric acids, without mixing, to arrive at it. Experiments variously modified, and made upon vegetable and animal substances, confirmed the same conclusion. 5. *Of some general observations on these phenomena, and of the mode of decomposition and transition.* It hence

appears that hydrogen, the alkalies, the metals, and certain metallic oxyds, are attracted by negatively electrified metallic surfaces, and repelled by those that are positively electrified; and *vice versa*, that oxygen and acid substances are attracted by positively, and repelled by negatively electrified metallic surfaces. These attractive and repelling powers are efficacious enough to overcome wholly or partially the ordinary agency of chemical attraction.—Mr. Davy entertains no doubt, from comparative experiments, that the principle of action is the same in Voltaic and in common electricity. 6. *Of the general principles of the chemical changes wrought by this electricity.* When oxalic, succinic, benzoic, boracic, and phosphoric acids, in their dry and solid states, were brought into contact with an extended plate of copper, insulated by a glass handle, the copper was found to be electrified positively, and the acids negatively. And in favourable conditions of the weather, from one to five or six touches were sufficient to produce a sensible change of the metal. So when the metallic plates were made to touch dry lime, strontites, soda, and magnesia, the metal became negative. He is strongly inclined to conclude that bodies which possess opposite electrical energies, with regard to one and the same body, likewise possess them with regard to each other. And this he found to be the case with lime and oxalic acid, which being brought together, the former became positively, and the latter negatively electrical. Acids in the positive part of the circuit separate themselves from alkalies, oxygen from hydrogen, and so on; and metals on the negative side do not unite to oxygen, nor acids remain in union with their oxyds; and in this way the attractive and repelling powers seem to be communicated from the metallic surfaces throughout the whole of any menstruum in which they may be dissolved. 7. *Of the relations between the electrical powers of bodies, and chemical attractions.* Electrical energy may be conceived to be identical with matter, or an essential property of it. Amongst the elementary particles, which combine chemically, all those whose electrical powers are well known, exhibit opposite states, as copper and zinc, gold and quick-silver, sulphur and the metals, acids and alkalies, all of which afford apposite examples. The effect of heat in promoting chemical action, as in glass, tourmalin, and sulphur, seems to be by increasing their electrical powers. It also gives more freedom of motion to the particles among each other. When thereby or otherwise, bodies are artificially brought into high states of opposite electricities, they make an effort to restore an

equilibrium, and thereby frequently evolve heat and light. And these two phenomena are likewise known to be the result of all intense chemical action. 8. *Of the mode by which the pile of Volta acts, as deduced from experiments.* The great tendency of the attraction exerted by the several chemical agents, through the positive and negative surfaces of the Voltaic apparatus, would appear to be the restoration of the equilibrium. The electrical qualities of the metals with regard to each other, or the substances dissolved in the water in the Voltaic and other similar apparatus, seem to be the causes which disturb the equilibrium, and the chemical operations tending to restore the equilibrium. The actual phenomena probably depend upon their joint operation. When a communication is opened between the two extreme points, the opposite electricities endeavour to neutralize or annihilate each other; and if the fluid medium between them was a matter quite incapable of change or decomposition, there is reason to suppose the balance of power would be restored, and the motion of the electricity speedily cease. But this not being the case in the prepared pile, the process of disengaging electricity goes on until the contiguous metallic and saline substances can act no more, and then the process stops. 9. *Of some deductions and inferences from the preceding recitals.* The former and fashionable opinions, that chemical changes were the causes of Galvanic phenomena, cannot be any longer deemed correct; for an examination of the whole body of experiments will lead to a conclusion, that some form of electricity is the direct and active power inducing and modifying the affinities among the constituent elements of bodies. This is probably the great modifier of all their states and alterations. It can destroy the existing mode of arrangement among the particles, and dispose them to associate anew, and with other combinations. And if chemical union be governed only by the *natural* electrical energies, however strong these may be, there is reason to believe their strength is limited; whereas the power of artificial electricity seems to be indefinite or unlimited, by reason of the possible augmentation of power in the apparatus to an unknown or prodigious extent. And, therefore, new modes of analysis may be expected to lead us to methods of resolving into their constituent parts, those compounds which have hitherto resisted the utmost efforts of art; and all compound beings yield to this irresistible method of assailing them.

The applications which the ingenious and indefatigable

author makes of these discoveries, and of the principle which pervades them, to geology, chemical processes, animal and vegetable economy, and other subjects of experimental physics, are of the most interesting order. They will well repay the inquirer who seeks the particulars in the original lecture. For ourselves, we are content with laying before him an abridged form, a mere abstract of that distinguished performance.

Craniology.

Extract of a Letter from an American Gentleman in Paris to SAMUEL RUSSELL, *Esq. of this City.*

"When mentioning in my letter of yesterday the objects in the sciences which are more or less new, I forgot to speak of the most remarkable of them all. It is the doctrine of Dr. Gall, of which you have undoubtedly heard. He is a Professor of anatomy from Vienna, who has attached himself particularly to the study of the brain, and supposes that the force and qualities of the mind may be judged, at least in some degree, by the size and strength of the skull, and of particular parts of the brain. In consequence of this opinion, he infers, that we may judge of the character of the man by the figure of the skull; for if we know where that organ or part of the brain lies which is destined to perform a certain function, we can judge of the size of it by the figure of the skull or shell which covers it. He is now in Paris, and makes great noise, probably much more than the subject merits. I have never been present at any of his public lectures, and the little I have seen of him in private company has not offered me an opportunity to hear him discuss his peculiar doctrines particularly enough to explain them exactly from himself; but many things which I have heard stated as his opinions coincide so well with the ideas I have entertained of the manner in which our organs perform their thinking functions, that I have paid some attention to what I have heard of him. In teaching the anatomy of the brain, he does not begin at the top, and cut it off in slices as if it was a medullary substance; but he traces it from the nerves, which he seems to consider as the origin of the brain; and pursuing these nerves into the brain he unfolds the several organs, and says this is the continuation of the optic nerve, and that of another nerve; this organ is that by which we perceive the objects which enter by such a sense. He then compares the size of any particular organ with the corresponding organ of some animal whose principal faculty is that of this particular organ. For instance, an animal whose principal func-

tion seems to be that of smell, has this particular organ very large; while an animal whose greatest talent is good eye-sight, has a great portion of its brain in another organ or part of the skull. Thus I have heard it said that he says, such a man must have a strong memory relative to what he has seen, such as places, persons, and other objects, because he has a large portion of the brain in the organ or part where animals remarkable for such memories have the greatest portion of the brain, such as birds of passage. As to memory in general, he says there is no particular organ destined to it, but it belongs to all organs, and is strongest relative to those objects which are peculiar to the strongest organ. Thus one man remembers places or persons, and another sounds, and a third something else. It was, perhaps, this observation relative to memory which attracted my attention most particularly, because it corresponded so well with the idea I have often expressed, that memory seems to be a replacing of our organs in the same position in which they had before been placed. This idea seems to be confirmed by the facts which I am told he cites of individuals, who, after having arrived at several years of age, have become blind, and, continuing so during many years, they have at length totally lost all idea of colours or sight, though they remember other things which took place before their blindness. This must seem to be the effect of having lost the whole organ of sight, so that this organ cannot be placed in the position in which it was when the man had an idea of colours or sight. Hence it would seem that a man of any age whatever, who should lose totally the whole organ of sight in an instant, would instantly lose all memory of colours, all idea of sight, as much as if he had never seen.

I do not know that Dr. Gall has drawn this consequence, and said such would be the case; but this seems to be the consequence of his system, and I presume such is his opinion.

However it may be as to his physiology of the brain, in which it is not improbable there may be exaggeration and errors, his anatomy of the brain, and his manner of teaching it, are unquestionably far superior to what before existed.

Skull and Brain analyzed.

Dr. Gall is now in Paris. In company he is modest, unassuming, and, in his manners, very unlike a quack. The other day he exhibited his anatomical knowledge of the brain before a commission of the society of the college of Medicine, and

separated it in such a manner with the hand, as to excite surprise and approbation. His talents as an anatomist and physician are acknowledged by some of the first in Paris of those professions: but before such he makes no defence of his system of *craniology*. He speaks French fluently, though with a German accent. He has engaged to deliver a course of lectures explanatory of his doctrines and discoveries, before the *Atheneè de Paris*. These, at present, form the favourite topic of conversation in most societies, and as the author has many disciples among the female sex, he is rather popular. He is, however, attacked by some as a fatalist, and by others as a materialist, and some of the journalists treat him with much freedom. One finds an index to the passions and faculties of the individual in the bones of the hand; another in those of the foot. He visited the mad-house, (Bicetre,) and touching the head of one of the unfortunates of that place, pronounced him to be a poet. The keeper attested that he had written some good verses. Notwithstanding this and many other facts, I am still incredulous. I can easily conceive how the muscles imprint on the human face the passions of the mind; but I cannot easily imagine how the action of a portion of the brain produces a mark or protuberance on the cranium which designates the talent, or particular disposition of the individual. Besides, it is proven that the internal depressions of the skull do not correspond with the external protuberances. According to Dr. Gall's system, if a man loses part of his brain he loses an organ. This is not so. Several individuals who had lost a part of the cranium and brain have preserved the usual exercise of all their senses.

In dissecting the brain he evinces a profound knowledge of that organ. Instead of beginning at the external surface, according to the usual method, and arriving at the centre by horizontal sections, he commences at the base.

On the spinal marrow he has observed, that it is formed of ascending and descending fibres, which are interwoven at each articulation of the vertebrae; that they are nourished by means of a ganglion, and that they are distributed to all parts of the body, and even to the surface of the skin. Each nervous system is independent of all the others, and draws its life from its ganglions, or from that greyish, pulpy, mucilaginous substance, generally named cortical substance, but by him called mother-substance, or nutritive substance of the nerves.

The spinal marrow is proportionably stronger and more abundant in animals than in man. It is thicker in man than

in woman. It is not of an equal diameter throughout all the length of the vertebræ. The brain of woman is smaller than that of man: its lobes form angles, while in man they are rounded and better terminated.

He considers the brain as a nervous tissue, of which the developement is successive. In hydrocephalous brains he has found that the internal and nervous membrane is not ruptured, but stretched and developed gradually by the water contained in the cavities or ventricles; and that the brain is not disorganized nor dissolved.

In all animals the cerebral substance is in greater abundance towards those organs which are most exercised: in birds, towards the eyes; in dogs towards the nose; whilst in man it is distributed equally to all the senses, or if one has more than another, it has a greater degree of that faculty which is attached to it.

European Publications concerning the United States.

Several years ago we announced the German work of Dr. Albers at Bremen, entitled, "American Annals." This was published periodically, and intended to make known through Germany the progress of the physical sciences in America.

Since that time a periodical work has been undertaken at Paris, by Mr. Caritat, under the denomination of the "American Library." Seven or eight numbers have already appeared. Its chief object seems to be to bring the readers of the other continent to a more speedy and correct knowledge of what is passing in the scientific department of this quarter of the globe.

And more recently still, to wit, in August, 1806, a memoir was read by Dr. Valentin before the academy of Marseilles, "On the present state of the physical and natural sciences in the United States of North-America, and on some recent discoveries which have been made therein."

Notices concerning Fluate of Lime and Oxide of Manganese, discovered in the State of New-York: Communicated to the Editors, by Professor Bruce, of this City.

Fluate of Lime.

On a white lamellated carbonate of lime, the surface of which is crystallized in compressed hexaedral pyramids, are incumbent small cubic crystals, some of which are bevelled on the edges. These crystals are transparent and colourless, except a few, which have a light yellowish tinge. Fracture foliated,

being easily reduced by cleavage to an octaedral form. They are sufficiently hard to cut the carbonate and sulphate of lime, though they are themselves easily scratched by quartz. Specific gravity 3.06. Before the blowpipe they are fusible into a transparent glass. On ignited charcoal they become phosphorescent. When pulverized and exposed on glass to the action of sulphuric acid, they are dissolved, and the glass becomes corroded.

This specimen, which was found near the falls of Niagara, was presented by Col. Trumbull to Dr. Bruce, in whose cabinet it is at present.

From the properties above mentioned, it is evident that these cubic crystals are composed of lime, combined with the fluoric acid.

The fluate of lime, though well known in many parts of Europe, has hitherto been unnoticed in the United States. M. Guillemarde, in his mineralogical notes, published in the travels of the Duc de Liancourt, mentions the probability of the grey and blueish strata near Reading (Penn.) being composed of fluor. Dr. Seybert, of Philadelphia, having accurately explored the vicinity of Reading, is of opinion, that the strata which M. Guillemarde supposed to be fluor, consist of calcareous breccia, every part of which strongly effervesces with acids.

The fluate of lime, when worked with certain metallic ores, greatly facilitates their fusion; hence, from its frequently being used as a flux, it has obtained the name of fluor.

It occurs of various colours, and, when sufficiently compact, is susceptible of a fine polish, as in Derbyshire, in England, where it is manufactured into articles of ornament, as vases, columns, &c. some of which are of the most exquisite workmanship, and are highly valued.

From the property which the fluoric acid possesses of corroding glass, it is used for engraving on that substance, particularly in France and England.

The fluate of lime is generally considered as one of the most favourable indications of metallic veins.

Ferruginous Oxide of Manganese.

The specimen is of a dull earthy appearance, of a dark brown colour. Fracture conchoidal, of a fine grain—is so soft as to be easily scratched by the nail, or cut with a knife; when rubbed it stains the fingers. Its specific gravity 4.00. The specimen is partly massive, partly stalactitic; the stalactites

being covered with very minute indeterminate steel-grey brilliant crystals.

Before the blowpipe it communicates to the sub-borate of soda a reddish purple tinge. On being exposed to heat with muriate of soda and sulphuric acid, it yields the oxigenated muriatic acid.

It is entirely soluble in boiling muriatic acid; on adding to the solution prussiate of pot-ash, a blueish precipitate is produced.

This substance, which was found at Ancram, in Columbia county, in this State, appears to be a variety of ferruginous oxide of manganese, greatly resembling the *Wad* of the English mineralogists; like it, when mixed with lintseed oil, and gently heated, it inflames.

The oxide of manganese is used in several of the arts. In small quantity it renders glass clear and transpatent: hence it has been termed *glassmaker's soap.* When added in greater quantity it gives to glass a beautiful purple colour. By potters it is used as a black glaze. The oxigenated muriatic acid, which, from its property of destroying colours, is now so extensively used in bleaching, is obtained by means of the oxide of manganese.

In chemistry it is employed for the purpose of procuring oxigen gas.

The specimen above described, from its very fine grain, is easily ground in oil, and, from experiments made for the purpose, it is the opinion of a very celebrated artist in this city, that it may be employed with advantage as a valuable pigment.

Specimens of Minerals lately discovered in Europe.

The cabinet belonging to the Professor of Mineralogy in this city has been enriched by specimens of some of the newly discovered minerals of Europe, very lately received from M. Haüy, at Paris. Among them is the native Carbonate of Magnesia, and Diopside from Piedmont, the Silicious Borate of lime from Arendal, in Norway; the Laumonite from Brittany; together with several new varieties of the Sulphate of Barytes, Arragonite, Mellite, Epidote, Mesotype, Grammatite, and Chromate of Iron.

Henry's Epitome of Chemistry.

We think it our duty to recommend to public attention Mr. Henry's interesting work on Chemistry; an impression of which, from the fourth English edition, has lately issued from the press

of Messrs. Collins and Perkins in this city. This excellent epitome of the science is divided into three parts; 1st, intended to facilitate the acquisition of chemical knowledge, by minute instructions for the performance of experiments. 2d. Directions for the analysis of mineral waters; of earths and stones; of ores of metals; and of mineral bodies in general. 3d. Instructions for applying chemical tests and re-agents to various useful purposes, such as *the detection of poisons*, and the *ascertaining the purity of chemical preparations employed in medicine and the arts.*

Professor Silliman, of Yale College, Connecticut, has considerably enriched this edition by a number of notes at the end of the volume.

As this work comprehends a greater body of important chemical facts than is elsewhere to be found within the same limits, it ought to be in the possession of every student of that science.

Mr. White's Essay on a Cold.

An edition of this useful British publication, augmented with annotations explanatory and practical, by J. Stuart, M. D. &c. of Philadelphia, has lately appeared in that city. Some further account of it may perhaps be given hereafter.

Darwin's Botanic Garden.

A second American edition of this celebrated work, containing the last improvements of its author, and all the plates, ornamental as well as useful, of the best London edition, has recently issued from the press of Messrs. T. & J. Swords. It appears to be executed in the same style of neatness and correctness with the edition printed by them in 1798, and edited by our worthy and much-lamented colleague, Dr. Elihu H. Smith, whose complimentary poem to Dr. Darwin, we are pleased to find, is preserved in the present impression.

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END OF VOL. V. HEXADE II.

Circular Letter from the College of Physicians and Surgeons of the State of New-York, to the Presidents of the Medical Societies in the several Counties of the State.

New-York, 15th July, 1808.

SIR,

THE College of Physicians and Surgeons, established by the Regents of the University of the State of New-York, for the promotion of Medical Science, consider it incumbent on them to inform you of the progress of the Institution, and of the plan of instruction intended to be pursued.

Agreeably to the provisions of the charter, the Regents have appointed the following gentlemen "*Professors of the University*," for this College, to wit:

SAMUEL L. MITCHILL, M. D. Professor of Natural History and Botany.

EDWARD MILLER, M. D. Professor of the Practice of Medicine.

BENJAMIN DE WITT, M. D. Professor of Chemistry.

ARCHIBALD BRUCE, M. D. Professor of Mineralogy.

JOHN AUGUSTINE SMITH, Professor of Anatomy and Surgery.

WILLIAM JAMES M'NEVEN, M. D. Professor of Obstetrics, and the Diseases of Women and Children.

NICHOLAS ROMAYNE, M. D. Professor of the Institutes of Medicine.

In the recess of the Board of Regents, the College have appointed Dr. BRUCE Lecturer on Materia Medica, and Dr. M'NEVEN Lecturer on Clinical Medicine.

The lectures on the several branches will commence annually on the first Monday in November, and be continued for at least four months.

During this period also Clinical Lectures will be given on the cases occurring in the New-York Hospital by Dr. MILLER, and on those in the Alms-House by Dr. M'NEVEN, whose prac-

tice respectively in these institutions the students will have the privilege of attending.

Courses of private lectures will likewise be given at the same time by the Professors of Anatomy and Surgery, and of Chemistry to such as choose to join their private classes. From the one, the student will derive the advantage of acquiring practical knowledge in Anatomy and Surgery; and from the other, of becoming experimentally conversant with the various operations of Chemistry.

This College being instituted on a liberal and extensive plan, under the superintendence of the Regents, and the patronage of the State, and calculated to disseminate Medical knowledge in every part of the country, it is deemed an indispensable duty to second the enlightened and patriotic views of the founders, by furnishing the best means of instruction in every branch of Medical knowledge, and by providing every possible facility for the improvement of students. For these purposes, the College have been assiduous in procuring an Anatomical Museum, a Chemical Laboratory, a Medical Library, Cabinets of Mineralogy and Natural History, and a commodious building for the accommodation of the Professors and Students. It is proposed that the Medical Societies in every county in the State shall each of them designate a Student of Medicine, of good moral character, of promising talents, and of diligent habits, who shall be admitted to attend all the public lectures given in the College the ensuing year, free of expense. All other students, as well from this State as from any of the United States or elsewhere, shall have the privilege of attending the lectures of all the Professors, for the sum of forty dollars, paid into the funds of the College; or of attending any one Professor, for fifteen dollars.

Gentlemen who shall have attended during two sessions of the College, and passed the usual examinations to the satisfaction of the Professors, will receive degrees in Medicine from the Regents of the University, of which the Governor of the State is always *ex-officio* President.

By order of the College,

NICHOLAS ROMAYNE, *President.*

ARCHIBALD BRUCE, *Register.*

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